

Queensland Parents for People with a Disability

Inclusion or Segregation for Children with an Intellectual Impairment: What does the Research Say?

**Robert Jackson PhD
Adjunct Associate Professor of Education
Edith Cowan University
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QPPD
PO Box 466,
Salisbury Qld 4107
Ph 3875 2101
Fax: 3875 2152
www.qppd.org

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About the Author

Dr Bob Jackson has over 30 years of involvement in the disability and special education fields, working with families, service agencies, schools and universities on the practicalities of inclusion. He was Director of The Centre for Disability Research and Development at Edith Cowan University in Western Australia and Associate Professor of Special Education at that university. Dr Jackson remains attached to Edith Cowan as an Adjunct Associate Professor of Education and also occasionally teaches students at Curtin and Notre Dame Universities in Perth.

Dr Jackson is based in Western Australia and can be contacted on bobjackson@include.com.au

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Inclusion or Segregation for children with an intellectual impairment: What does the research say?

Abstract

School inclusion for children with an intellectual impairment was mandated in the United States in 1974, legally supported in Australia from 1992 and recommended by the United Nations since 1994. Despite this endorsement it has only gained wide acceptance in Australia in the last decade and often with considerable reluctance from state and private education systems. In this literature review, the empirical basis for inclusion has been investigated by collecting previous reviews going back over forty years. Reviews were looked at that compared inclusion to segregation as well as the impact on other children and teachers.

While it was apparent from the reviews that much of the research was poorly controlled and anecdotal in nature, the sheer volume of consistent findings allows clear conclusions to be drawn in most areas.

It was found that children with an intellectual impairment benefit from inclusion academically and socially. While the advantage over segregation was sometimes non-existent or small, in the larger samples and meta-analyses significant benefits were found for inclusion, with children who were segregated losing percentile ranks in comparison to their peers. No review could be found comparing segregation and inclusion that came out in favour of segregation in over forty years of research. In research on the impact of pulling children out of

regular education for special classes, results were strongly in favour of full inclusion as a preferred alternative. There was some evidence for benefits for a pullout approach for children with learning disabilities rather than an intellectual impairment. For the impact on other children, the large majority of studies found a positive or neutral impact academically. The likelihood of a clearly positive impact on the academic skills of other children increased when cooperative teaching approaches such as peer tutoring were implemented. For social impact the reports were consistently positive and widespread. The non-disabled children gained a range of positive benefits such as increased tolerance, acceptance of difference, friendship with a person with a disability and higher self esteem. These benefits were not automatic

however and adult intervention to support social inclusion is recommended.

Many new strategies have been reported that enhance the inclusion experience such as teacher collaboration, refined in-class groupings, multilevel teaching and cooperative learning. Research is also being reported on the impact of teacher education and support, use of educational assistants, family involvement, curricular adaptations and school culture development. It would appear that inclusion of children with disabilities has the impact of changing the school culture to a more

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inclusive one to the benefit of a great many students, not just those with a disability.

With the benefits of inclusion so clear for children and schools, the need now is for research to move from 'should

we include' to 'how to include more successfully' and what additional training and resources can be provided to teachers and schools to make the process smooth and the outcomes as effective as possible.

Introduction

Primarily since the passing of the American Law PL-94-172 in 1974 there has been increasing focus on inclusion, although as this review shows the research evidence on inclusion versus segregation goes back even further. Since the passing of the Individuals with Disability Education Act in the US, the Disability Discrimination Act in Australia in 1992 and the Salamanca statement from the United Nations in 1994, inclusion has been growing all over the world although many still fight it (Kluth, Villa, & Thousand, 2001).

In this document, reviews of the impact of inclusion are summarised and conclusions drawn. This has been difficult for a range of methodological reasons, in particular that many of the research studies are poorly controlled; the definition of inclusion seems to vary and often is not given in the articles; inclusion is more strongly embedded in primary education with much less research on high school inclusion, and the majority of the articles in the field are opinion based rather than empirical. Despite these problems there are clear trends apparent allowing for quite definitive judgements to be made.

Methodology

Electronic data bases were searched using the key word 'review' along with a range of key words such as 'inclusion' and 'mainstreaming'. The titles of the thousands of articles that

resulted were screened for articles that reviewed the research evidence on inclusion versus segregation and related issues such as parental involvement, partial inclusion and methodologies of change. Relevant articles were retrieved and individually read, and in addition the reference lists of the most recent articles were screened. This turned up some additional articles that were also retrieved, including some major experimental comparisons. The major finding of the superiority of inclusion over segregation was also tested by

writing to the heads of education departments in Australian Universities (Jackson, Chalmers, & Wills, 2004) as well as key international writers in the field. At the time of writing there had been no criticism of the finding and several confirmations of the accuracy of the conclusion.

Inclusion means physically present in the same classroom as peers for the same proportion of time; socially belonging and immersed in the same curriculum material. In addition, the child should be under the same school and class rules

Definitions

One of the problems in the literature is that often the words inclusion or mainstreaming are used without definition, which leads to confusion over the findings. For example is inclusion in a segregated centre segregation or inclusion? What about 'mainstreaming' where a child with a disability may be isolated in the classroom with an aide. Is this inclusion or 'on-site segregation'? (Farrell, 2004). How broad should the definition be? For example in a compelling article by Donlevy (2007) a range of racial, psychological, cultural and other aspects were canvassed as part of a necessary definition. For this review the decision has been made to use a definition that would apply to

any child regardless of race, religion or impairment. Inclusion means physically present in the same classroom as peers for the same proportion of time; socially belonging and immersed in the same curriculum material (Jackson, Chalmers, & Wills, 2004; Wills & Jackson, 1996). In addition, the child should be under the same school and class rules, although it needs to be stressed that it may take more time and attention to teach some children these rules.

The Research Findings

Academic Impact

Lloyd Dunn was a major writer and researcher in the field of special education who wrote a paper entitled “Special Education for the mildly retarded – Is much of it justifiable?” (Dunn, 1968). In this article Dunn reviewed the literature on segregated education and inclusion up to that time and came to the conclusion that students with mild intellectual impairment made as much or more progress in regular education as they did in segregated classrooms. The reason that only students with mild mental impairments were mentioned was that in most of the western world children with significant intellectual impairments were denied any education at all. Dunn’s paper caused a considerable stir in the journals of that time and could be considered the article that brought the topic of school inclusion into the consideration of mainstream educational researchers.

The first widely accessible meta analysis of the comparison of inclusion and segregation was done by Calberg & Kavale(1980). They set a criteria

for inclusion in their study and found 50 articles of the 860 surveyed that met their criteria for inclusion. On combining the data from these studies and subjecting them to statistical analysis, they concluded that special class placements were significantly inferior to regular class placements for students with below average IQs. Students with IQs between 75 and 90 lost 13 percentile ranks on average. Those with IQs between 50 and 75 lost 6 percentile ranks (p301). This does not mean that those in segregated placements went backwards but rather that the segregated placement slowed their rate of progress so that they fell further behind. The same outcome did not apply to children with general learning difficulties where some degree of segregation was found to be significantly beneficial. Similar results on the significant benefits of inclusion over segregation for children with an

intellectual impairment were found in a meta analysis by Wang, Anderson and Bram (cited by Sobsey & Dreimanis, 1993) over studies covering 3400 students. Baker, Wang, & Walberg (1994) commented on 3 meta analyses and concluded that inclusive education demonstrates a small to moderate benefit on academic and social outcomes of special needs children. They concluded that special needs children perform better in regular classes than if separated into special classes.

In a review done in the early 1980’s Madden & Slavin (1983) came to a similar conclusion but added social and other benefits. “The research favors placement in regular classes using individualized instruction or supplemented by well designed resource programs for the

... special class placements were significantly inferior to regular class placements for students with below average IQs.

achievement, self esteem, behavior, and emotional adjustment of academically handicapped students” (p519). In another example of the rate of learning under inclusion and segregation, Madden and Slavin provided a graph from the work of Calhoun and Elliot which is reproduced in Figure 1 below. It shows that while the matched students in both segregation and inclusion showed improvement, those included increased their learning at a much superior rate. The significant positive effect of special education was also shown by Marston (1987). That is, segregated education has been shown to be effective in some studies, and sometimes significantly so, but it is usually less effective than inclusion when the outcomes of the two approaches are compared.

With the changing of the laws in the USA in the early 1970’s regarding all children having the right to an education in the least restrictive alternative, children with much more severe handicaps started to appear in the general education classrooms, and again the results were found to be positive. In a major study over 14 school systems in the United States Brinker & Thorpe (1986) found that the degree of integration was a significant predictor of educational progress, regardless of the functional level of the student. This meant that students who were included full time did better than those who were included 50% of the time, who again did better than those included for say, 20% of the time. Moreover, this effect occurred even with the most severely impaired students. It does not indicate that they kept up with the rest of the class, but that they did better the more they were included. This study was

one of the first to challenge the efficacy of pullouts for special education as an educational option. From their data full time inclusion appeared to be a better option for all students with intellectual impairments.

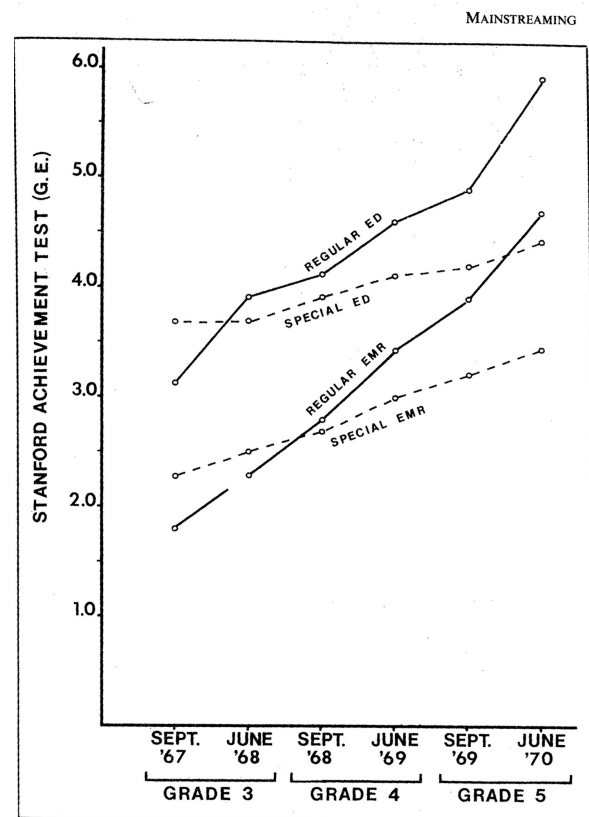


FIGURE 1. Mean achievement test scores (given as grade equivalents) for students in regular or special education in the study by Calhoun & Elliott (1977).

Sobsey and Dreimanis systematically reviewed all of the literature on inclusion from 1980 to 1990. They concluded that “The majority of research to date shows both educational and social advantages for integrated settings over segregated alternatives” (p1), and suggest that intensive or individualised programs should be provided in integrated settings (Sobsey & Dreimanis, 1993). A similar point on the importance of continuing and improving special education but within inclusive settings was made by Wang, Walberg, & Reynolds (1992).

A review of the field was conducted by Lipsky & Gartner (1996). They continued with the argument that the special education model must not segregate those children with special needs and provided data from Vermont that concluded that many children performed better in a number of areas when included such as behaviour, social interactions, classroom performance and overall success. They also reported on a Michigan Department of Education report in the early 1990's that concluded improved outcomes as a result of integrated placements. Lipsky & Gartner (1996) also summarised a number of research studies indicating that: integrated model results were more favourable and cost effective; the gap of those students in pullout programs widened more rapidly than those children fully included; included students with disabilities were as likely to engage in positive social interactions with peers as were students without disabilities; students with learning disabilities made academic gains on criterion referenced tests and report cards; those fully included did better on the Metropolitan Achievement Test than those in pullout programs; they were more likely to achieve individualised education plan (IEP) objectives if included rather than segregated; inclusion improved children's attitudes; and these positive effects were confirmed by parents. A Quebec study by Saint-Laurent, Fournier, & Lessard (1993) compared integration with two types of segregated program. They concluded that there were no differences between the outcomes of the different

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approaches with each having strengths and weaknesses. They found a similar outcome of no difference in a subsequent study (Saint-Laurent, Dionne, & Giasson, 1998). It is difficult in these studies to determine the make up of the groups, which seemed to include children with specific learning disabilities. As has been mentioned above there is some evidence that these children can benefit from pullout for intensive teaching (Calberg & Kavale, 1980).

Freeman & Alkin (2000) concluded from their review of over 100 studies that integrated students performed better than segregated on measures of academic performance and social competence,

but also reported that students with disabilities did not receive as high a social acceptance ratings as their non-disabled peers. This implies that when including children with disabilities, attention will need to be paid to their social standing and the building of relationships. Hunt & Goetz (1997) reviewed 19 research investigations into inclusion and concluded that parental involvement is an essential component of inclusive schooling; students with severe disabilities can achieve positive academic and social outcomes from inclusion; and students with severe disabilities can achieve acceptance, interactions and friendships in inclusive settings. Parents reported this latter point as a major outcome of inclusive schooling. Also, IEPs written for students in inclusive classrooms allow more interaction with peers and more reciprocal interactions occur in

inclusive settings. For impact on other children Hunt & Goetz (1997) concluded from their review that there was no change in educational achievement for others; and there was no differences in time engaged in instruction. They found further that teacher collaboration and curricular adaptations are essential components of successful inclusion. Holahan & Costenbader (2000) in two studies of inclusion versus specialised programs found that for preschool children with significant delays emotionally and socially there was no difference in outcomes but those with smaller delays did better in inclusive programs.

A massive study over the whole of the Dutch Education system started with the presumption that pupils in special education would do better because of the specialist care and individual attention (Karsten, Peetsma, & Roeleveld, 2001). The data set was the longitudinal data from 40,000 students in primary schools, 35,000 who were in regular education and 5,000 segregated. They concluded that: “there is little evidence to support the idea that at-risk pupils make less progress, in either their academic or psychosocial development, in regular schools compared with pupils in special schools” (p193). In discussing their results more directly, they concluded that students in segregated education do less well than those who were included, and the longer they were segregated the larger the gap with their included peers. For social behaviour, self-concept, attitude to work and support from home the outcomes were superior for the included students. Teachers believed the parents of the children who were

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included were more supportive at home than those who were segregated. It was also found that the degree of specialist care provided was not significantly related to student progress. This would infer that any possible losses of specialist support from inclusion will not have a detrimental effect on student performance – a common concern of parents. Overall, as might be expected in such a massive study there were wide individual differences in outcome but the overall results were in favour of inclusion. One important conclusion was that it was felt that the dual system of education was standing in the way of provision of services for pupils with special education needs.

In a follow up study, Peetsma, Vergeer, & Roeleveld (2001) took 252 matched pairs of students from the main sample and conducted further comparative research. It should be

noted that these children may have included a range of children who might normally be classified as having a learning disability rather than an intellectual impairment as those in general education were classified by their teachers as being ‘at risk’ of failure. They were then compared to a similar cohort in special education. After two years of the study, the students in mainstream made more progress in mathematics than those who were segregated whereas school motivation developed more favourably in segregated schools for students with a mild intellectual impairment. After 4 years those included made more progress academically than those who were segregated and the school motivation effect disappeared. A similar finding was made to that in the

major study that specialist intervention made no significant difference. A major Norwegian study looked at the impact of segregation and inclusion on vocational skills (Markussen, 2004). The curriculum of Special Education is often composed of 'life skills', which are arguably designed to improve the likelihood of student gaining employment post school. The study analysed the data for 777 students in special education and found that those in segregated education achieved a lower level of success than students in mainstream classes. An important supplementary finding was that providing additional support in ordinary classes appeared to have a negative effect on the achievement of formal competence in vocational skills. This would imply that the social cost of additional attention being paid to students outweighed any advantage of the additional help in the mainstream classroom. The authors concluded that special education in Norwegian upper schools does not succeed in reducing differences.

The review of academic outcomes above is a review of reviews and covers hundreds of individual research articles comparing inclusion and segregation. Common findings are that children progress at least as well in inclusive education as in segregated, with a small (but possibly significant) academic benefit from inclusion. No empirical study could be found that compared inclusion and segregation and came out in favour of segregation. Given that the reviews covered more than 40 years of research and a range

of situations that must have included both good and poor inclusion and good and poor segregated education, it is clear that the academic benefits of inclusion are robust, widespread and continue into secondary education. Segregated education is not supported as a superior alternative to mainstreaming by the empirical data so far available.

The impact of pullouts for special education

One model of special education that is widely used is the pullout for special classes. Students may be mainstreamed for subjects such as art and physical education but go to a 'resource room' or special class for teaching in academic subjects where they are likely to be far behind their non-disabled peers. The model is seen as providing the best of both worlds – opportunities for building social relationships in mainstream and enhancement of their academic skills through the benefit of small classes and more individualised instruction.

Despite the inherent attractiveness of this approach, it remains with little support for students with an intellectual impairment. Rea, McLaughlin, & Walther-Thomas (2002) compared the models of continuous inclusion versus the pull out model with all students in the 8th grade in two schools. They found that the students who were continuously included with no pull outs had higher grades; equal or better results on standardised tests; no more

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behavioural infractions and attended more days at school. Kluwin and associates (Kluwin, 1993; Kluwin & Moores, 1985, 1989) looked at the effect of different placements on children with hearing impairments. While they found that the children who were included did significantly better academically, they argued that the differences in outcome were primarily accounted for by the quality of instruction in the class. Karsten, Peetsma, & Roeleveld (2001) found that those who were included did better than those who were segregated with the gap increasing the longer the student was segregated. Brinker & Thorpe (1984), in a study covering 14 school systems, found that the degree of integration was a significant predictor of the educational progress that students achieved regardless of the functional level of the student. Affleck, Madge, Adams, & Lowenbraun (1988) compared a full integration model to a resource room approach and concluded full inclusion is at least as effective as the resource room approach, provides a less restrictive environment and is considerably cheaper to implement. Wang & Birch (1984) compared full inclusion to a resource room approach and concluded that the results suggested integration was superior in attaining desirable classroom approaches, student attitudes and achievement in basic skills. Shinn, Powell-Smith, & Good (1997) investigated the effect of reintegrating 23 children with mild disabilities and found that they made academic gains comparable to their general education peers. Waldron & McLeskey (1998) compared fully included students to

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those in resource rooms and found that the fully included students made significantly more progress in reading and comparable progress in math to those segregated in resource rooms. Further, significantly more of the included students made comparable progress in reading to the general education peers although there was no significant difference between the groups in math results. Marston (1996) compared inclusion, segregated and combined models for elementary (primary) students with mild disabilities and found teachers

preferred the combined model, which reflects other research. They also found that the academic results were better in the combined model, with significant advantages over the inclusive model, although it is not clear what comprised the 'mild disabilities'.

Mills, Cole, & Jenkins (1998) compared three groups of 14 children: one with just children with disabilities, one with 5 children with disabilities and one with 11 children with disabilities. Overall the treatments did not differ significantly but the group with 11 children with disabilities performed significantly better.

Overall, the comparative review literature in this section is small. It can best be summarised by concluding that the pull out or 'resource room' model has little data to support it for children with an intellectual impairment and some significant contrary evidence from major studies. Given that it is an expensive model that holds students away from their peers, it is hard to support it as a model. In particular, it makes the assumption that students, many with low social skills, will be

able to learn two sets of classmates, two teachers with associated rules and two classroom environments in a fraction of the time that their fully include peers have to learn one environment. As such it is hard to see it being an effective model and the research evidence is leaning to this conclusion.

Social Impact

On the social impact of inclusion Heiman & Margalit (1998) found that preadolescents in special classes at mainstream schools felt lonelier than children in totally segregated schools but this difference dropped away by adolescence. Similar trends were found for feelings of depression and peer perception of social status. In a later study Heiman investigated the friendship quality amongst children in 3 educational settings: segregated school; in special classes in mainstream schools and children without labels in mainstream schools (Heiman, 2000; Heiman & Margalit,

...students in segregated schools responded more passively and reported feeling lonelier than students in the other groups.

1998). It was found that children in segregated schools tended to have fewer friends and met these friends at school only. This is not surprising as segregated schools must by their nature draw students from a broad geographical area so the chance of friendships being maintained outside of school is much lower. Heiman (2000) also found that the students in segregated schools responded more passively and reported feeling lonelier than students in the other groups. When we look at some of the data from this study (figure 2 below) we find students in the segregated school (SE) reported only one friend in the majority of cases, whereas those in the mainstream school (SCM) reported having more friends than the regular mainstream children. These are very impressive findings given that the students with an intellectual impairment in the mainstream school were still segregated into special classes. The differences between those fully segregated and those in mainstream were significant statistically.

Mean, standard deviation and percentage between groups on “number of friends”

Number of friends	Students in SCM (n=265)		Students in SE (n=121)		SWD students (n=189)		Group effect F(2, 434)
	M	SD	M	SD	M	SD	
	4.47	2.45	1.63	1.23	3.94	2.37	35.70* SE < SWD, SCM
No friends	4.5%		5%		6.3%		
1 friend	6%		60%		7.5%		
2-4 friends	42.7%		31.7%		51.7%		
5+ friends	46.8%		3.3%		34.5%		

Note: SWD = Students without disability. SE = Students with intellectual disabilities in special education schools. SCM = Students with intellectual disabilities in self contained classes.
*p < .001

Figure 2. Heiman (2000) p8.

Hunt & Goetz (1997) in their review of inclusion found for social outcomes that there was a significant increase in engagement with non-disabled peers and a significant increase in the interaction with others. Students in general education classrooms received and provided higher levels of support to peers and had wider friendship networks composed primarily of children without disabilities. It was reported that the majority of interactions were initiated by their peers without disabilities and they were engaged with other students for a large proportion of the periods observed. They also reported that the extent and pattern of interactions could be improved with intervention by adults. Similar findings were reported by Brinker, (1985) but this study focussed on students with severe disabilities. Brinker & Thorpe (1986) found a highly significant relationship between the degree of integration and the social behaviour of children with severe levels of intellectual impairment, with the more inclusive environments significantly better. They found that the rate of social bids by the children was significantly higher in integrated settings and the non-disabled children responded to these bids. Rates of social bidding have been shown to be as high as five times greater in inclusive rather than segregated settings (Brady, McEvoy, & Gunter, 1984). Kennedy, Shukla, & Fryxell (1997) showed significant social benefits from inclusion with enduring relationships developing. Even children with profound levels of disability have been shown to benefit socially from the inclusion experience

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and engaged in interactions comparable in length to their non-disabled peers. However the authors also suggested that adult intervention was recommended to assist young children to initiate interactions (Hanline, 1993).

Social inclusion can be positively enhanced by adult intervention. Examples are through consultative and collaborative classroom activities (Vaughn, Elbaum, & Schumm, 1996); volunteer programs (Carter, Hughes, & Copeland, 2001); circle of friends (Frederickson & Turner, 2003); facilitating friendships (Stainback & Stainback, 1987); group affection activities (Twardosz, Nordquist, Simon, & Botkin, 1983) and encouraging children to think about inclusion and what makes it more likely to happen (Messiou, 2008). It has also been found that the likelihood of students in high school wishing to volunteer is influenced by their prior experience of children with disabilities which supports the idea of earlier inclusion helping to change the attitudes of mainstream students (Carter, Hughes, & Copeland, 2001).

In summary, while inclusion has been shown to have major positive benefits for social skills and friendships with non-disabled peers, it is apparent that this is not automatic, particularly in the older years of schooling. For example, children with disabilities do not necessarily prefer inclusion and may prefer the safety of a segregated situation (Klingner, Vaughn, & Schumm, 1998). This is not surprising as we are all aware of the power of peer groups and the dangers of bullying someone less socially valued.

However there is a strong and growing body of evidence that with appropriate adult intervention the social inclusion of children with even profound disabilities can be positive, producing enduring relationships with benefits to all involved.

Impact on other children

One concern commonly voiced about inclusion is that the participation of children who are achieving significantly below the general class level will disrupt the learning of other children by taking away teacher time. Jackson, Chalmers, & Wills (2004) argue that there are many likely gains to society and the children themselves from sharing a classroom with children with a disability and that teachers also can benefit from learning new techniques to break down skills and motivate students.

Peltier (1997) in a widely cited review of the area found that the research was remarkably consistent that students without disabilities can benefit from their participation in inclusion in a number of ways. He concluded that this finding was surprisingly strong across a wide variety of situations. His review also challenged two myths about the likely disruption to flow from inclusion. “The findings indicated that the presence of children with severe disabilities had no effect on the levels of allocated or engaged time ... and time lost to interruptions was not significantly different to non-inclusive classrooms” (p236). The

benefits included reduced fear of human difference; growth in social cognition; improvements in self-concept; development of personal principles, and warm and caring friendships. In their major review Hunt & Goetz (1997) similarly found benefits for the other children as well as benefits for the child with a disability in being able to achieve acceptance, interactions and friendships in inclusive settings.

Mc Donnell and colleagues

(McDonnell & Fister, 2001; McDonnell, Thorson, McQuivery, & Kiefer-O'Donnell, 1997) found no difference in academic responding and task management behaviours of children in inclusive classrooms and that the children with disabilities did not change their rate of responding when included. There was a significant difference between children with and without disabilities on competing behaviour. With a class

wide peer tutoring program the competing behaviour was found to reduce with increased levels of cooperative behaviour. Fisher (1999) worked with high school students and asked them for reactions to inclusion. Students were supportive of inclusive placements, commenting that these students added a dimension of diversity to the school, had become part of the learning community and needed to be prepared for the future. In another study, the authors sampled over 1400 high school students and found that if the students had had some exposure to peers with severe handicaps they held generally positive attitudes (Fisher, Pumpian, & Sax, 1998). They concluded that the

“The findings indicated that the presence of children with severe disabilities had no effect on the levels of allocated or engaged time ... and time lost to interruptions was not significantly different to non-inclusive classrooms”

inclusion of children with severe disabilities tended to affect the overall school community positively. Similar positive effects on the attitudes of high school students was found by Burns, Storey, & Certo (1999)

Staub & Peck (1994) commented that while the research was limited at that time, studies had found no deceleration in the academic progress of the other children; other children did not pick up any undesirable behaviour from the children with disabilities; there was no decrease in the allocated time of teachers, and the students without disabilities picked up several desirable traits such as increased tolerance, self concept and personal principles. Manset & Semmel (1997) found that while the impact of inclusion was mixed for the students with mild disabilities, there was more conclusive evidence of the positive effects on other students. Salend & Duhaney (1999) came to a similar conclusion, adding that there did not seem to be any negative impact on the academic performance of the children and commenting that the teachers' response to inclusion was complex and changed over time.

Looking more specifically at the impact on academic results Cole, Waldron, & Majd (2004) and Sharpe, York-Barr, & Knight (1994) found that the children without disability made significantly greater academic progress in mathematics and reading in inclusive schools, even though there was no significant difference for the children with disabilities. However a close inspection of the means for this study indicates clear benefits in inclusive education of children with

disabilities due to the percentage of children making comparable or greater progress to their non-disabled peers. Staub (1996) concluded from her review of the literature that inclusion does not slow down the other children; had no effect on instructional time; and that the non-disabled children picked up many positive characteristics such as friendships, social skills, self esteem, personal principles, comfort around those who are different and increased patience.

In a major study looking at the relationship between inclusion and academic outcomes in mainstream schools in England Farrell, Dyson, & Polat (2007) found a small but insubstantial relationship that was largely argued to be resulting from other factors due to the variability between schools. They concluded that mainstream schools need not be concerned about possible negative impact of inclusion on the non-disabled children. A slightly contrary result was found by Huber, Rosenfeld, & Fiorello (2001). They found inclusive school processes had a differential effect, with low achieving students benefiting academically but with higher achieving students losing ground. General education students reading scores were not affected with mixed effects in maths.

The most definitive study in this section was carried out by Kalambouka, Farrell, Dyson, & Kaplan (2007). They systematically reviewed over 7000 articles on the topic, selecting 119 papers meeting the criteria for review by the research team. Of these 26 had data that could be extracted and analysed. Overall they found that there were no adverse

... children without disability made significantly greater academic progress in mathematics and reading in inclusive schools

effects on pupils without disabilities from inclusion of children with disabilities, with 81% of the studies reporting positive effects.

In summary, the research points to a very high likelihood of neutral or positive academic impacts on other children and a very high probability of beneficial social and behavioural impacts on them, with minimal impact on the classroom teachers. However these are overall results and do not show the difficulties that can be experienced by a teacher with one child's difficult behaviour. This of course is not a disability issue but one of general classroom management. The different effects in different schools points to the need for more research on exactly what aspects of the school environment contribute most to beneficial academic and social outcomes for all children.

What seems to produce positive inclusion outcomes?

Stevens & Slavin (1995) describe a cooperative elementary school model based around full mainstreaming and cooperative processes in the classroom. They found significantly higher achievements academically across a range of curriculum areas when compared to other comparative schools. One finding of interest was that gifted students in heterogeneous classrooms where the students were encouraged to learn cooperatively in groups had significantly higher achievement than their peers in enrichment programs without

... gifted students in heterogeneous classrooms where the students were encouraged to learn cooperatively in groups had significantly higher achievement than their peers in enrichment programs without cooperative learning.

cooperative learning. Hunt & Goetz (1997) in their review of inclusion concluded that collaborative efforts amongst school personnel were essential as were adaptations to the curriculum. King-Sears (1997) argued in their review that the best inclusive practices involve methods that have the greatest desired impact in affective, psychomotor and cognitive areas for all students – with and without disabilities. This is a consistent theme running through the literature – good teaching is what matters and good teaching works for all children. Jackson, Ryndak, & Billingsley (2000) questioned 47 experts in the field of inclusive education on the best approaches. The results included the promotion of inclusive values; teacher collaboration; family involvement; planning and assessment; instructional strategies and support of students with challenging behaviour.

In a huge systematic review of the area of inclusion, Nind & Wearmouth (2006) collected a total of 2095 potentially relevant articles. After a process of careful screening of the articles, 68 met the criteria for inclusion in the mapping study. The majority of the articles did not focus on curriculum except in literacy, and the majority of articles related to primary school contexts. The most common pedagogical approach was adaptation of instruction, often associated with adaptations to materials and classroom environment. Approximately 25% of the articles involved peer interactive approaches such as peer tutoring. Computer based approaches were rarely used. Johnson (1999) reviewed

the literature at that time and listed a range of approaches such as instructional strategies; multilevel instruction; activity based and experiential learning; student directed learning and self-determination; cooperative learning and peer collaboration; heterogeneous grouping; individualised and adaptive instruction; teaching as facilitating student learning and reduced class size. They commented that in effectively all cases psychological assessments almost always blame the child or family for lack of academic progress when it is clear from the literature that school and teaching variables are critical to success.

In a small review of literacy, Schmidt, Rozendal, & Greenman (2002) argued that success in reading requires all students to be engaged and suggested that the key components were teacher beliefs of whether they had the skills to include children significantly below others; the extent of collaboration amongst teachers and the extent of collaboration enabled amongst students in the classroom. Hunt, Staub, & Alwell, (1994) and Staub, Spaulding, & Peck (1996) demonstrated that even with children with multiple disabilities, collaborative approaches by other students could achieve academic gains in both elementary and high schools. Staub, Spaulding, & Peck (1996) reported increased independence, growth in socialisation opportunities, growth in academic skills and improvements in behaviour for the included student with peer support in operation. Other children showed benefits in self-

esteem, greater awareness and appreciation of people with disabilities; greater patience and became more responsible.

For differentiated instruction, Mastropieri, Scruggs, & Norland (2006) worked with 13 high school science classes matched across control and experimental conditions. They used differentiated learning activities with peer partners and found benefits in using this approach on experimental post-tests as well as the high stake end of year tests. They concluded that

On curriculum generally, ... found a major move away from the 'life skills' curriculum approach in the selected journals. There had been a 32% decrease in articles on this topic with a 231% increase in articles on interactions, integration or inclusion.

collaborative hands-on activities statistically significantly facilitate the learning of science and that students enjoy the activities. On curriculum generally, Nietupski, Hamre-Nietupski, Curtin, & Shrikanth (1997) found a major move away from the 'life skills' curriculum approach in the selected journals. There had been a 32% decrease in articles on this topic with a 231% increase in articles on interactions, integration

or inclusion.

Vaughn, Schumm, & Klingner (1995) interviewed 95 middle and high school students on their perceptions of adaptations made in the inclusive classroom. From the results they concluded that all students need to be taught learning strategies that will provide them with the tools to participate; grouping needs to reflect students' learning styles and the learning needs of both high and low achieving students, and that adaptations are generally viewed positively by the students. A large majority (91%) of students in both

middle and high school stated a preference for peer tutoring.

In summary, it is difficult to determine 'what works best' from the data so far published in reviews. This might reflect the short period since the change from 'should we include?' to 'how should we do it?' in the mainstream journals. From the information so far published, adaptation to the curriculum, classroom organisation and teaching materials are the most common strategies, with increasing support for the idea of peer tutoring and other cooperative learning strategies. The trends in the literature confirm the need to move away from 'life skills' or non-academic community training back towards the mainstream curriculum. When this occurs academic skills are attained with benefits to teachers and students. It is apparent that all students are benefiting from these classroom adaptations in both primary and high school and students are generally positive about the change. On a broader front, it is clear that parental involvement, teacher collaboration and role of the principal in providing a positive whole school approach to inclusion and are key to successful inclusion occurring (Riehl, 2000).

Teachers, Administrators and Parents

There has been a major worldwide move to inclusion, particularly since the United Nations came out in favour of full inclusion for all children in 1994 (United Nations, 1994). However administrators, parents and teachers have not necessarily been in favour of inclusion and often actively

oppose its implementation, despite the extensive support for it as outlined above. Forlin, Douglas, & Hattie (1996) interviewed Support Centre teachers as well as the mainstream teachers in attached primary schools. They found that acceptance was higher for children with physical handicaps than intellectual and the degree of acceptance decreased as the level of disability increased. While more accepting of part time integration, overall they often held strong views about integration that were at variance with trends for inclusion emerging at that time. For administrators, a significant minority was found to be opposed to inclusion and over one third uncertain about their attitude. The percentage in favour of inclusion was only just over 50% (Stainback, Stainback, & Stainback, 1988). Pearman, Huang, Barnhart, & Mellblom (1992) surveyed primary and high school teachers on their attitudes to inclusion. There were no significant differences on issues such as school, job position or type of position but significant differences by gender (females more accepting) and level of schooling with primary school teachers more supportive than high school. Scott, Vitale, & Masten (1998) found that teachers in inclusive classrooms were unlikely to adapt their traditional whole group instruction approaches. In reviewing the literature, they believed that this was due to lack of teacher training and limited school support. Smith (2000) found that teachers in the US received training that was largely disjointed and unfocussed with little link to classroom practice. Most teachers felt unprepared and ill-equipped to include children with disabilities.

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It is clear that teachers have to change if inclusion is to be successful. McLeskey & Waldron (2002) used qualitative methods to assess teacher perceptions to inclusion and found that teachers reported fundamental changes occurred in curricular requirements, grading practices and classroom grouping patterns. Teachers also reported that their roles now involved more collaboration and teamwork.

In a study with primary school teachers, Forlin (2001a) found that teachers were not overly stressed by inclusion with stress more related to the behaviour of children generally and the professional competence of the teacher. Female teachers reported more stress than males around classroom issues. Experience with inclusion and formal training were both found to be related to reduced stress levels. Forlin also looked at the changing role of support teachers with the old role of taking the child away for specialised instruction giving way to increased collaboration with mainstream teachers (Forlin, 2001b, 2001c). Fisher, Frey, & Thousand (2003) suggested that special educators roles now needed to include instruction, assessment, curriculum, leadership and record keeping in the inclusive school. Hobbs & Westling (2002) suggested mentoring was a key recommended component of teacher education to model professional activities.

Some attempts have been made to change the attitude of teachers to inclusion. Carroll, Forlin, & Jobling (2003) used a 10 week course with pre-

service general education teachers and found a decrease in uncertainty and coping; teachers felt less ignorant and pitying, and had a greater focus on the person rather than the disability.

The role of teacher assistants has also come under increasing scrutiny. While many teachers see the provision of an aide as almost a precondition of successful inclusion, there are increasing concerns that the way that this person is used may in fact undermine successful inclusion (Brown, Farrington, & Knight, 1999; Giangreco, Broer, & Edelman, 1999, 2001; Giangreco, Yuan, & McKenzie, 2005; Minondo, Meyer, & Xin, 2001). Some reasons are that the aide is the least qualified person who often does that bulk of the teaching; they can increase dependency by helping too much; they let the teacher stay out of direct involvement with the student with a disability; they may keep other children away, and they may highlight difference (Giangreco, Yuan, & McKenzie, 2005).

Parents also are not necessarily in favour of inclusion. Many parent still choose segregated education even when aware of the research on the impact of inclusive schooling. With inclusion only being one or two generations old in most countries, the quality of inclusion is still varied and some parents believe that the quality of education is higher in segregated settings despite the evidence to the contrary. For example, while parents of children with Down syndrome were strongly in favour of inclusion, those parents who had a child with autism

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spectrum disorder were much less supportive and often preferred part time mainstream placement (Kasari, Freeman, & Bauminger, 1999). When comparing parents of children in segregated education with those included, Collins (1995) found that parents of children with severe disabilities who were segregated were fearful that their child would be badly treated in mainstream. The parents of the children actually in mainstream were however overwhelmingly positive about the experience. This might indicate that as the positive outcome of inclusion become more widely known, parents may become less fearful of giving it a try.

Overall, it is worth considering that many, if not most teachers have had minimal or no preparation for inclusion. As the research data indicates that successful inclusion requires major changes in curriculum management, assessment processes, in-class grouping and teacher collaboration, this is clearly an area that needs a lot more focus (Foreman & Arthur-Kelly, 2008). Developments such as the 'Index of Inclusive Schooling' could also be very helpful for administrators, principals and schools to develop more inclusive practices (Ainscow, 1998).

The critics

The literature on inclusion includes many critics. Kauffman has been a major and ongoing critic of inclusion (Kauffman & Hallahan, 1995; Mock & Kauffman, 2002), although much of his writing relates to children with emotional and behavioural problems.

The most common critique is that inclusion has not yet proved itself and so there is no reason to change (Lindsay, 2003, 2007; Mesibov & Shea, 1996). This is a complete reversal of the logical argument. Segregated education takes children away from their peers and is very expensive. It could be considered to be *prima facie* detrimental and so would have to show itself to be significantly superior to inclusion to compensate for the inbuilt

disadvantages. It is in fact segregated education that has to show itself to be superior educationally to justify the continued funding, and the continuation of forced segregation is now both illegal and considered immoral in most western countries.

Others take a more ideological position, claiming that inclusion is a 'movement' that is ideologically driven and causing harm to children and families (Fuchs & Fuchs, 1994; MacMillan, Semmel, & Gerber, 1994; Morse, 1994). A variation on this is to take examples of rejection by other children that sometimes occurs with inclusion as empirical evidence to justify its discontinuance (Bender, 1985). If the same argument was applied to the inclusion of girls in schools –that they are sometimes subject to rejection, teasing and bullying by boys – it would be seen for the fallacious argument that it is. It is not logical to use poor inclusion practices as a 'scientific' rationale for its abandonment. The issue is that the schools have to do better, and in particular they need to protect the most vulnerable. Brantlinger (1997) argues that while the critics condemn the

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proponents of inclusion as being ideological, much of the writing of the critics portrays deep ideological positions that are potentially harmful to some of the most vulnerable members of society.

In many ways the arguments seem to be tied up in special education as a placement versus special education as a process. The placement model is concerned that children are being 'dumped' in neighbourhood schools and this is likely to cause harm to them and their non-disabled peers even though this is not supported by research data. The emerging inclusion model is that all children need individualised attention and instruction, and this is best done together rather than apart (Hehir, 1997). The fact that both approaches see the need for individualised attention might be a starting point for some reconciliation of the two schools of thought.

In summary, many of the critics of inclusion point to poor inclusion practices or argument unsupported by empirical evidence to justify their position. Both of these are not logically sustainable. What are needed by proponents of segregated education to justify its continuance would be significant benefits to outweigh the inherent costs of segregation. In this they have failed based on this review of reviews. Even if they had succeeded in such an endeavour this still would not justify the forced segregation of children against the wishes of their parents. When one considers the case of girls, the known benefits of separate schooling would never justify forced segregation against

the wishes of parents. 'Forcing' includes making inclusion so difficult that families 'choose' segregation.

The future

The inclusion of children with disabilities has been accompanied by some dramatic improvements in the life conditions and opportunities for people with an intellectual disability, although it cannot be claimed that there is a causal relationship between the two events. It is more likely that both have been part of the ongoing reform in the field with advances in one area inspiring and influencing progress in another. In 1987 in the US, only 27% of students were served in regular classrooms more than 80% of the day. In 1993-4 this had risen to 44% of students in the regular classroom most of the day (Hehir, 1997) and would be much higher today. There has also been a 92% decrease in institutionalisation over a similar period; increased participation in post secondary education with 44% of adults with disabilities having had some post-secondary education in 1994, and the number of adults with severe disabilities in the workforce increased by 800,000 in 1991-1994 (Hehir, 1997). While being reported infrequently, inclusion of people with disabilities in universities and colleges is occurring (Casale-Giannola & Kamens, 2006; Uditsky, 1993) and this is increasing the employment opportunities of people who take up this option. It will be very difficult to sustain an argument that inclusion is impossible in primary or high school when it is occurring in universities.

Overall it is clear that inclusion of children in school has positive impacts

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socially and educationally on children with intellectual disabilities. The impact on other children is also positive with the majority of studies also showing neutral or positive academic effects and considerable positive social and value impacts. Inclusion is good for all children. It is time to move past the 'should we include' to *how can we do it better*. This review has shown considerable deficiencies in teacher education and support and little support for the traditional solutions of pulling the child out into a segregated environment. A great deal more work is needed on curriculum issues, peer tutoring, classroom management, school organisation, behavioural support and training of classroom assistants. The benefits to the education of all students is likely to be considerable.

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