

THE DEVELOPMENT OF CHILDREN WITH DOWN'S SYNDROME WHO ARE MAINSTREAMED IN
THE CHRISTCHURCH AREA: A STUDY OF SIX CHILDREN OBSERVED IN 1984/5 AND
IN 1988

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Paper presented at the New Zealand Special Education Association Conference,
'Reaching Beyond', at the Christchurch College of Education, 30, 31 August,
1 September, 1989.

ABSTRACT

Four girls and two boys with Down's Syndrome (D.S.) were observed a year after starting school and some 3-4 years later in their regular classrooms. Data was collected on their classroom functioning, social interaction at lunchtime and their academic development. Results indicate that the children's interactions with peers had developed in both range and complexity since the earlier study. Interactions initiated to peers and from peers were greater in number than in the previous study and interactions with the teacher were less frequent. The children were either as attentive or more attentive compared with the previous study and levels of social interaction had also increased. Progress in reading was also evident, although in some cases, development was less than expected, due to insufficient practical and professional resources available. The results fail to support the commonly held belief that as children with D.S. reach middle childhood, their development plateaus or declines. These results also contradict the presumption that mainstreaming is only appropriate for younger children and that as the gap between the child with D.S. and his/her peers widens, the child would be better off with other children of similar ability. Even though the children's development was at a slower rate than their same-age peers, they all continued to make gains in almost all areas observed and to have benefitted from the normalised experiences and setting.

This research was funded under contract by the Department of Education,
Wellington.

Few longitudinal studies are available on the development of children with D.S. in mainstream settings. Such data is valuable as it can contribute to quality decision-making by parents and educators about appropriate educational experiences for children with D.S. Beliefs such as 'mainstreaming is only appropriate during the first few years of school' and 'children with D.S. do not develop beyond a mental age of 7 (Sherman and Sherman, 1983) continue to prevail. In absence of data to challenge such beliefs, it is likely that such views contribute to decisions about educational placements, which in turn may lead to more restrictive learning environments for children with D.S. especially as they mature.

While changes in developmental levels should clearly not be the only positive outcome to support the practice of mainstreaming, the presence of such data no doubt contributes to the strength of the argument. Changes in developmental progress is merely one positive outcome. The following outcomes provide sufficient validation in themselves for mainstreaming children with disabilities:

- (a) Children with disabilities have the same rights to life, opportunities, education and the pursuit of happiness as any other children (Biklen, 1985; Certo, Haring and York, 1984).
- (b) Mainstreaming is a matter of values. Biklen (1985) states, "It is a goal, indeed a value we decide to pursue or reject on the basis of what we want our society to look like (p. 3)."
"Unconditional mainstreaming has the potential for all pupils to learn about each other's humanness, uniqueness and similarities. By contrast, continued segregation of disabled and non-disabled students can only help foster stereotypes..." (Biklen, 1985, p 9)
- (c) The opportunity to live alongside and interact with people who have disabilities is an important skill for living in society as a parent of a child with multiple handicaps comments,
"I kept wondering how it was that I have lived in neighbourhoods, gone through schools....and never had a single experience with a person who had mental retardation. I really feel I missed a vital educational experience... an experience that could have helped me to not only be a more complete person, but more importantly, as it turned out adjust to my son's handicap" (Certo, Haring and York, 1984, p 45).
- (d) Bronfenbrenner (1979) has long argued for the introduction of a "curriculum for caring" in schools. He states, "...sooner or later all of us will desperately need such comfort and care, and no society can sustain itself unless its members have learned the motivation, sensitivities, and skills that such caring requires." It would seem that the implementation of mainstreaming policy provides an excellent opportunity for all children to develop caring skills.

Thus, while the present study focusses on only one outcome - the children's developmental gains, it is recognised that there are other equally valid reasons to support the practice of mainstreaming. The aim of the present paper is to describe the development of 6 children with D.S. in terms of their classroom, reading and social skills, since they were last observed in 1984/5 (Rietveld, 1987).

METHOD

Subjects and Setting

Six children (four girls and two boys) with Down's Syndrome were the focus of this study. These children who were aged between 9 and 11 years formed part of the original cohort of eight children observed in 1984/5. A year after they had started school. Parental permission was declined for two subjects from the original sample. All six children had taken part in the Christchurch Early Intervention Programme (Champion, 1982) prior to school entry.

Three contrast children were obtained from each class by asking the class teacher to nominate three children of "average academic ability" and who were of the same sex, and ethnic background as the subject. Children with behavioural difficulties were excluded. These contrast children tended to be slightly younger than the children with D.S. as the subjects all started school up to a year after their fifth birthday.

All subjects were participating in regular classrooms on a full-time basis. Three subjects attended local suburban state schools, two subjects attended integrated schools and one subject attended a private school.

Measures

- (a) The Structured Playground Observations: Social interaction in the playground was recorded using a slightly modified version of Parten's (1932) Scale of Social Interaction. The six scale categories included unoccupied behaviour, onlooker behaviour, solitary play, parallel play, associative play and co-operative play. Two further categories were added for the present study. These were inappropriate play and talking to the teacher. These latter two categories were added to evaluate the claim that pupils with D.S. engage in larger amounts of inappropriate play and that they are more dependent upon adults than their same-age peers. During the playground observation, the child with D.S. and one contrast child were observed alternately using an interval recording procedure with a 10-second observe interval and a 5-second recording interval. Subjects 4, 6, 10 and 11 were observed for three 30-minute sessions, while subjects 3 and 8 were observed for one 30-minute session. (See Appendix 2 for coding schedule)
- (b) Running Record Classroom Observations: Running records were used in the classroom to collect information about what the child did, the language used, the type of activity engaged in and involvement with peers. Both the subject and one contrast child (nominated by the teacher) were observed. Each observation which was divided into 30-second intervals lasted 15 minutes. Subjects 4, 6, 10 and 11 and the respective contrast children were observed for 90 minutes in total while Subjects 3 and 8 and the contrast children in their classes were observed for a total of thirty minutes.
To analyse the data, each instance of a subject-initiated interaction (verbal or nonverbal) and its response from his/her peer was extracted from the original running records. The content and context were noted for each child as these variables affected subsequent categorization.

where a subject-initiated interaction involved more than one statement or response, then each time the subject spoke or initiated contact, the content and context were noted as separate interactions. For example:

(The teacher is printing the subject's name in her book for her to trace over).

Subject → Peer; "Who's that?" (Asks question)
(referring to picture drawn by peer)

Peer → Subject; "Moses."

Subject - Peer; "Moses, that's nice." (Positive verbal)

In this segment, the subject initiated the interaction, then interacted again in response to the peer's statement. Both are noted as separate subject-initiated interactions. Categories were developed to describe all the different types of social interactions the subjects engaged in. The full list of categories are shown in Table 2.

- (c) **Structured Classroom Observations:** During the structured observations, the subject and three contrast children were observed in rotation. Interval recording with a 10-second observe interval and a 5-second record interval was used to gather information on i) the type of interaction engaged in by the subject, and ii) the on-task, off-task and disruptive behaviour of the subject. The data on the contrast children were averaged in order to provide a comparison with the child with D.S. in the same setting. (See Appendix 1 for coding schedule)
- (d) **Reading Skills:** Teachers and/or parents were asked to name the child's current reading book and the number of sight words known. Each subject was also taken through the Burt Word Reading Test. Word recognition scores were interpreted using the New Zealand norms for boys and girls (N.Z.C.E.R., 1981).

Reliability of the Structured Observations: Inter-observer reliability checks were made on 25% of the structured observations in the classroom and playground. These checks were distributed evenly throughout the study. The percentage of agreement was calculated by dividing the number of coding agreements across all observations by the total number of agreements and disagreements.

RESULTS

The results of the reliability checks are given in Table 1.

Table 1

Percentages of inter-observer agreement obtained during the reliability checks on (a) the structured classroom observations and (b) the playground observations

	Percentage of agreement	
	Mean	Range
Type of interaction (Classroom)	91	81 - 100
On-task, off-task, disruptive behaviour (Classroom)	97	89 - 100
Type of social Interaction (Playground)	97	85 - 99

Playground Observations: Time Spent in Social Play

The social play of Subjects 3, 4, and 6 in 1984 and in 1988 and the social play of Subjects 8, 10 and 11 in 1985 and 1988 are given in Figure 1. The results show that these children engaged in increased levels of social interaction with age.

These results fail to support the commonly held belief that as children with Down's Syndrome reach middle childhood their development plateaus or declines (e.g. Dutton, 1975; Sherman and Sherman, 1983). These results also contradict the presumption that mainstreaming is only appropriate for younger children and that as the gap between the child with Down's Syndrome and his/her classmates widens, then the child with Down's Syndrome would be better off with other children of similar ability.

It is interesting to note that qualitative shifts have occurred in the type of play engaged in since the earlier study. Subjects 6 and 10 in particular spent approximately half of their social play time engaged in sustained co-operative play. This type of play involved following directions, generating appropriate actions and language commensurate with the game, abstract thinking, and taking on a specific role and staying with it. Such a change in the quality of play indicates that changes in abilities and development do take place, even if they occur at a slower rate.

Subject 11's lower rate of social play in 1988 can be explained by the environmental factors which operated during the 1988 observations. Play at lunchtime was confined to a noisy classroom with a large number of other children because of extremely poor weather over the three-day period. In addition, the older peers who in 1985 spent considerable time with Subject 11, were no longer at the school and their absence probably also contributed towards the reduced levels of social play.

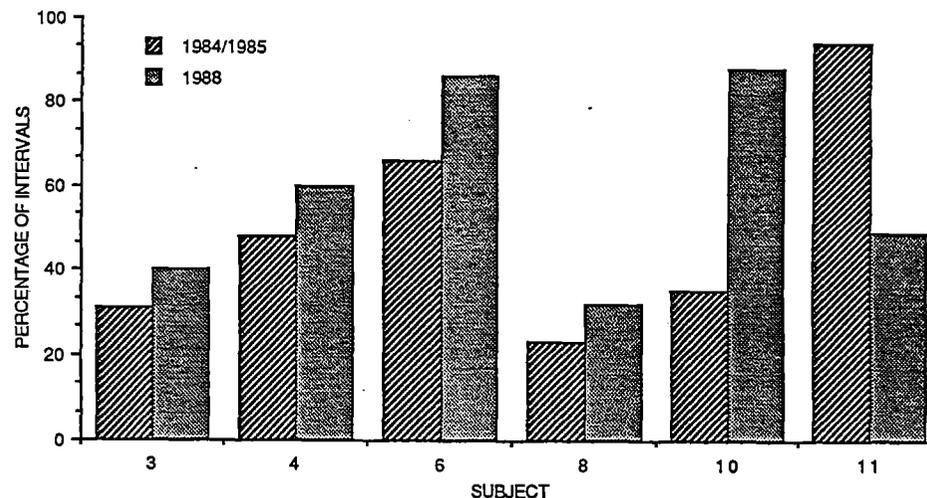


Figure 1: Percentage of Time Spent in Social Play by Children With Down's Syndrome in 1984/5 and 1988

Running Record Classroom Observations

The initiation categories were similar to those observed in the 1984/5 follow-up study (Rietveld, 1987). The types of initiations which were observed and the frequency with which they were observed in 1984/5 and in 1988 are set out in Table 2.

Table 2

Frequency of occurrence of the types of initiations identified during the running record observations in 1984/5 and in 1988

	1984/5		1988	
	Frequency (N)	%	Frequency (N)	%
Positive verbal	5	6	12	7
Criticism/negative	4	4.5	2	1
Positive nonverbal	14	16	19	11
Negative nonverbal	19	22	8	5
Asks questions	3	3	24	14
Playfights	0	0	1	1
Whispers	1	1	7	4
Positive self-statement	0	0	5	3
Acknowledges peer's response	5	6	19	11
Controlling comments	13	15	32	19
Babbles	3	3	0	0
Inaudible talk	0	0	4	2
Running commentary	4	4.5	7	4
Verbal requests	4	4.5	8	5
Argument about content	0	0	5	3
Neutral nonverbal	3	3	11	6
Neutral comments	4	4.5	3	2
Shows	5	6	3	2
Other	1	1	1	1
Total	88	100	171	100
Total (Contrast Group)	221		180	

* 1984/5 total (N= 9 hours)

** 1988 total (N= 7 hours)

As can be seen from the table, the total number of interactions initiated by the children with D.S. was only 9 fewer than the contrast children (D.S., 171; contrast, 180). This is in marked contrast to the 1984/5 study where the children with D.S. initiated less than half the number of interactions initiated by the contrast children (D.S., 88; contrast, 221). The present findings also contrast sharply with those of Gresham (1982) and Evans (1983) who reported that little interaction took place in mainstreamed settings and much of that which did take place tended to be negative. The data indicating a marked increase in subject-initiated interactions with peers over time is certainly promising, considering that Subjects 3 and 8 were observed for two hours less than in 1984/5. In addition, Subject 8 had a teacher-aide working alongside her for most of that time which precluded much peer interaction.

The types of interactions observed in 1988 were more complex and varied. This finding suggests that as the children with D.S. mature, their language continues to develop which enables them to engage in progressively more complex interactions with their peers. Behaviours conducive to developing positive peer relationships had increased and behaviours associated with peer rejection had decreased. Stocking, Arezzo and Leavitt (1980) list a number of strategies associated with the development of friendships. Three of these behaviours were also observed in the present study with increased frequencies. These behaviours are as follows: Asking questions, 1984/5, 3%; 1988, 14%

Positive verbal, 1984/5, 6%; 1988, 7%

Acknowledging peer's responses, 1984/5, 6%; 1988, 11%

It is worth noting that these three behaviours occurred more frequently in the 1988 study from the 1984/5 study, suggesting the acquisition of more advanced social skills.

Furthermore, two behaviours associated with peer rejection had markedly decreased. These were a reduction in the number of negative comments (1984/5, 4.5%; 1988, 1%) and negative nonverbal behaviours (1984/5, 22%; 1988, 5%). The data strongly suggests that the children continued to develop appropriate social skills and therefore the mainstream continues to be an appropriate setting for these skills to develop.

The less mature form of communication, babbling which was evident in the earlier study was absent in the 1988 study. More advanced language development had clearly taken place. Furthermore, more socially advanced behaviours not evident in the 1984/5 study were present in the 1988 study. Progressions in the children's cognitive and language development had occurred to enable the following behaviours to emerge: positive self-statements, whispers, argument about the content.

Subject 8 who showed a high incidence of negative nonverbal behaviours (12) in the earlier study did not display any such behaviours in the present study. It is likely that the naturally occurring consequences of the peer group (i.e. rejection of inappropriate behaviours plus daily exposure to age-appropriate peer models) has resulted in the acquisition of more appropriate behaviours. Such learning clearly requires a mainstreamed setting. There was no evidence to suggest that any other variable was responsible for the change in this child's behaviour. The data on this child lends support to Biklen's (1985) view that natural settings, cues, consequences and reinforcers are essential for students to learn, generalise and maintain everyday age-appropriate functional skills.

"To take students out of the mainstream and educate them in segregated schools is to create a make-believe or at least unnatural or abnormal environment, whereas the integrated school casts disabled students into situations that are far more like the integrated life situations for which all students are being prepared" (p 84).

In contrast, another child with D.S. the same age as Subject 8 and who also showed evidence of a high number of negative nonverbal behaviours was enrolled in a special school. This decision was based on the presumption that this placement would be the best way of dealing with the child's disruptive behaviours, that the placement would be temporary and that the child would be mainstreamed later.

While permission was not granted to observe this child in the satellite class (his current placement), both teacher and parent comments suggest that there has been little change in this child's level of disruptive behaviours some four years later as evidenced by the following comments:

Teacher: "He is likely to play up with a visitor in the room."

Parent: "His aggressiveness hasn't improved."

This comparison between two same-age children with D.S. with similar levels of disruptive behaviours on school entry and differential school placements highlights two important issues. Firstly, it would appear that once enrolled in a segregated setting, a return to a mainstream setting is unlikely, a finding also reported by Wilton, Glynn, Wotherspoon and McGinley, (1983) and Forest and Lusthaus (1987). Secondly, the absence of normally developing peers in the segregated setting limits the type of social interaction and hence, the amount of social learning which is possible. Kunc (1984) makes the point in this way, "because most students assigned to segregated classes exhibit inappropriate behaviour, it is probable that the children's social behaviour will regress rather than progress" (p 7). For the child attending the segregated setting, it is likely that the absence of typical peers has contributed to the delay in his acquisition of appropriate social skills, while for Subject 8, the presence of such peers is likely to have had a major impact on her acquisition of these skills.

It has been argued that controlling comments (e.g, "Look at the board") disappear as children mature. Alton-Lee and Nuthall (1989) observed no controlling statements in the classroom interactions of typical 11-year olds. In the 1984/5 follow-up, the children with D.S. and the contrast children engaged in controlling comments for similar periods of time (Rietveld, 1987). In the present study, the children with D.S. were still engaging in this behaviour but the frequency with which the contrast children engaged in the behaviour declined to about one-quarter of that engaged in by the subjects. This result suggests that this aspect of peer interaction has not matured in the way the other aspects of social interaction were observed to do.

Overall, these results indicate that the subjects' interactions have developed both in range and complexity since the 1984/5 follow-up study. It is true that the subjects' overall level of development is less than that of their peers. However, it is not the aim of mainstreaming to hold the learner responsible for catching up or keeping up with his/her age-mates (Little, 1985), but to maximize the potential development of children with special needs. The present results indicate that the functional communication skills of the children with D.S. are continuing to develop in mainstreamed settings.

Structured Classroom Observations

Table 3 compares the interaction rates observed in 1984/5 with the interaction rates observed during the present study. As can be seen from the table, the interaction rate with peers (both peer-initiated and subject-initiated) was higher during the present follow-up than it was 3-4 years earlier. The interaction rate with teachers, on the other hand was lower during the present study than it was during the earlier follow-up. These results suggest that as the children mature, they begin to interact more with peers and less with teachers

in the classroom. Marturano (1980) reports that this process tends to occur at an earlier age (age 4 to 6 years) with children who are not retarded, but it is interesting to note that this transition still occurs with children with D.S. albeit at a later age and to a lesser degree.

Table 3

Rates at which interactions were initiated by peers, by subjects towards peers, and by subjects towards adults for the six subjects who were followed up both in 1984-85 and in 1988

	Peer-initiated interactions to subjects Rate/10 mins		Subject-initiated interactions to peers Rate/10 mins		Subject-initiated interactions to teachers/adults Rate/10 mins	
	1984-85	1988	1984-85	1988	1984-85	1988
Subject 3 <i>Stacey</i>	2.3	1.0	2.7	1.0	1.7	1.0
Subject 4 <i>Ann</i>	0.0	4.0	0.7	4.3	5.3	0.3
Subject 6 <i>Dan</i>	1.3	8.4	3.0	10.6	3.7	4.0
Subject 8 <i>Ann</i>	2.0	9.0	4.0	4.0	1.3	2.0
Subject 10 <i>Ciano</i>	7.0	3.2	5.0	5.6	0.0	1.2
Subject 11 <i>Jo</i>	6.0	4.4	5.0	6.0	2.3	1.2
Mean	3.11	5.01	3.38	5.25	2.38	1.62
S.D.	2.52	2.83	1.51	2.86	1.71	1.18

Given the delayed development of expressive language skills amongst the subjects, the discovery that these children were initiating verbal interactions almost as frequently as the other children and that the number of interactions they initiated and peers initiated to them had increased since the 1984/5 study were most interesting findings. Like the running record data, these results provide no support for the view that mainstreaming becomes progressively less appropriate as the child with D.S. moves through the school.

Time On-Task

The proportion of time spent on-task during 1984/5 and 1988 as well as the rates of disruptive behaviours are shown in Table 4.

Table 4

The proportion of time spent on-task and the number of disruptive behaviours engaged in by the subjects in 1984/5 and in 1988

Subject Number	Time On-Task(%)			Disruptive Behaviours Rate/10 mins.	
	D.S. 1984/5	D.S. 1988	Contrast 1988	1984/5	1988
3	84	88	87	0	0
4	81	90	97	0	.3
6	83	84	94	.2	2
8	59	70	99	1.5	0
10	91	90	92	.3	0
11	80	81	75	1	0
Mean	79.6	83.8	90.6	.5	.3

As can be seen in Table 4, the children with D.S. spent somewhat less time on-task than did the contrast children. However, there were individual differences. Subjects 3 and 10 differed little from the contrast children in their classes while Subject 11 spent more time on-task than the contrast children in his class.

As a group, the children with D.S. spent more time on-task during the current observations than they did during the 1984/5 observations. All six subjects were either as attentive or more attentive during the present follow-up. This finding is encouraging for it indicates that children with D.S. can continue to achieve improvements in concentration in mainstreamed settings.

Disruptive Behaviours

Apart from Subject 4 who was minimally more disruptive and Subject 6 who was more disruptive in the present study, the remaining four subjects were less disruptive than they were in the earlier study. However, even including the data on Subjects 4 and 6, the low incidence of disruptive behaviours observed in both the 1984/5 and 1988 studies provide no support for the widely held belief that children with D.S. are more disruptive in the classroom than children without a disability. This belief persists, however. The exact reasons for the persistence of this belief are difficult to determine. Possibly, teachers have difficulty in isolating the child's behaviour from the child's handicapping condition. Possibly, the child is unpredictably disruptive or disruptive in ways which are clearly remembered. One teacher commented, "We've had a problem where Subject 3 has run off. So you suddenly have to abort everything to go and look for her. That's only happened about three times but still it's been an interruption in your programme."

Development in Reading

The subjects' general level of development in reading was assessed using the BURT Word Recognition Test. Each subject's reading age, number of sight words recognized (as estimated by the teacher) and current reading book or reading level are shown in Table 5.

Table 5

Burt Word Recognition Test Results and (where known) the number of sight words acquired (on school entry and in 1988) and current reading level of each subject

Subject	Burt Reading age	No. sight words known (school entry)	No. sight words known (1988)	Reading book/level
3	<6	7	unknown	6 year level*
4	<6	0	195	Boat Day
6	6.7 - 7.1	6	many	Tell-Tale
8	<6	1	16	Not on books
10	<6	6	unknown	Red
11	8.11- 9.5	20	many	Journals

*Teacher report

While all the children had made some progress in reading, the Early Intervention records and the 1984/5 follow-up records suggest that many of the children in the sample were not being fully extended in reading at school. For example, Subjects 3 and 10, when they entered school some 5 to 6 years ago, had acquired half a dozen sight words, a number of pre-reading skills and considerable receptive and expressive language skills. During the intervening period, the reading development of these subjects has been minimal. When observed in 1985, Subject 10 was reading from the red books of the Ready to Read Series. During 1988, Subject 10 was still taking home Red reading books, although the teacher did report that she would soon be making a start on the next level (yellow books).

The interview with Subject 10's teacher highlighted a number of problems teachers face when trying to provide appropriate instruction for mainstreamed children with D.S. The teacher expressed concern about Subject 10's lack of development in many areas including reading. She was also concerned about the large number of pupils with special needs in her class, a state of affairs which she believed precluded the development of an individualized reading programme for Subject 10. Other issues raised by this teacher included (a) the lack of equity in resources such as Reading Recovery, (b) the mainstreaming of children with special needs without compensation for the additional demands which such children place on teaching resources, and (c) the lack of professional advice for the teacher and teacher-aide regarding an appropriate reading programme for the child.

Some teachers and parents were pleased with the reading progress of individual subjects. In some cases, satisfaction was with respect to relatively small gains which suggested that some teachers and parents were underestimating their children's ability.

Recent research on the teaching of reading to children with D.S. suggests that such children make better progress in reading if the teaching is highly structured, with more repetition and stronger direction of the child's attention to critical cues such as sounds and letter shapes (Buckley, Emslie, Haslegrave and Le Provost, 1986). Although information on teaching methods was not collected during the present study, Subject 11's teacher indicated that a structured approach had been used which accounts for the excellent progress made by this child.

DISCUSSION

Issues Raised by the Results:

On one level, the results are encouraging. On another level, the observations reveal a series of issues which cannot allow one to be complacent about the current situation or the future of this group of children. Such issues are likely to be relevant to all mainstreaming situations. It would seem reasonable to presume that if the issues were appropriately addressed, the children's development would be enhanced to an even greater degree than is observed in this study. Some of the more critical issues are as follows:

Professional Support: The appointment of appropriately qualified resource personnel who work alongside teachers in an on-going manner remains the most important element missing from current mainstreaming policies. While teachers were clearly making the best possible choices on the basis of available knowledge, many felt uncertain about some of the issues confronting them and they expressed concern about the lack of on-going professional help available. A typical comment from one of the teachers follows:

"I've never had any training to deal with that sort of child, so that makes me feel a little bit uneasy at times - wondering if I'm doing the right thing for her. We can put her in the normal classroom situation you know and I kind of feel we're botching along the best we can. I'd like to know if there's something more that we should be doing which we're not doing - which we're not aware that we should be doing."

As a result of little or in some cases no on-going professional help being available, teachers did not always make changes to existing situations as they were unaware of the kinds of changes which would be of benefit to both the child with D.S. and his/her classmates. For example, one principal stated, "I think probably X just likes to be left alone during lunchbreak to do her own thing." In this case the child's isolation was viewed as the wish of the child rather than a function of the social context - a context which could have been modified, if a professional had alerted the school to this possibility and given suggestions as to how they might take steps to increase this child's level of social play.

The results of the present study suggest that readily accessible professional help is essential if optimal rates of development are to be achieved for the child with D.S. Without this help, the gains achieved by the Early Intervention Programme are less likely to be sustained (Rietveld, 1986; Rondal, 1988).

Qualitative Data: It is important for professionals involved in mainstreaming to gather qualitative as well as quantitative data. Ballard (1986) states, "This is not an either-or issue... Because individuals may evoke and experience environments in different ways we need to know about people's perceptions, beliefs and understandings relating to what they are doing and what is happening to them." (p. 50)

In terms of mainstreaming, data on educators' and peers' perceptions of issues such as the meaning of mainstreaming, the learning abilities of children with D.S. and so forth are of immense value. These perceptions provide some insight into the types of choices made in response to particular situations. For example, if educators believe that a child with D.S. chooses to play alone, then they are unlikely to modify that situation.

However, if educators believe that the child is playing alone as he/she lacks the social skills necessary to join his/her age-mates, or the classmates lack the necessary skills to include the child in their play, then they are more likely to plan an intervention to reduce the child's social isolation. Observations and informal discussions with peers indicated that the social skills of the children with D.S. were at times insufficient to gain entry to social interactions with their age-mates and also the child's classmates did not ^{always} know how to include the child with D.S. in their games. The following example illustrates how both these factors were operating.

Subject 3 spent most of her lunchbreak on the adventure playground where generally more of the younger children played. While she did interact with these children, interactions were of a more transient nature than those of her classmates who were involved in skateboarding, roller-skating and general chasing games fairly close by. After play, I asked one of Subject 3's classmates whether she thought Subject 3 would like to play their game and whether or not she was in fact allowed to play. This peer replied, "She likes roller-skates, but she usually falls over and all that. She's really good at running and arm-wrestling. We like playing with her, but she usually likes playing by herself."

This peer's perception provides some insight into some of the reasons for Subject 3's lower level of social play as well as some insight into ways in which these barriers to social play might be overcome.

In this case, some instruction of both the child with D.S. and peers seems to be warranted. The child with D.S. appears to need practice in initiating interactions with her classmates as it would seem from the peers' perceptions that this child does like roller-skating and chasing games. Her classmates appear to need further opportunities to discuss the difficulties faced by children with D.S. and to be given further opportunities to discuss their feelings regarding inclusion of the child with D.S. in their play. They could also be shown practical ways of including the subject in their games by, for example simplifying the subject's role in complex games, by giving clear directions, by explaining the game, and by helping the child to stay on-task (playing elsewhere/wandering off/playing alone is more likely to be the result of not knowing what to do rather than not wanting to play). When such modifications are made to the mainstream, all children are likely to benefit. Too often, the mainstreaming process is seen as a process which penalizes the non-retarded child instead of being seen as a process which provides additional learning opportunities for all children.

The above example illustrates how the qualitative data on Subject 3's peer's perceptions provides added information to the quantitative data. Thus, while the quantitative data gathered in 1984 and in 1988 showed increased levels of social play (31%, 1984: 40%, 1988), which is certainly a most encouraging finding, this data alone provides no information as to why this child's rate of social play is still less than 50% of the time potentially available for play.

Peer Interaction: Controlling Comments/Gestures

It will be recalled that on Table 3, it was evident that an aspect of social interaction that had not matured in the way other aspects of social

interaction had, was controlling comments/gestures. Such comments include "Get on with your work, Do your reading, Off the desk now!" tapping pen on peer's desk to direct his attention to the board. An implication of this must be that the children's social interaction must be constantly monitored and possibly assisted to greater levels of maturity and appropriateness.

While some of these controlling comments were clearly appropriate, for example, Subject 6 said, "Now start there" to a peer who was reading him a story, others were less so and peers who were trying to do their work found them frustrating. Subject 3 expressed 7 controlling comments in a 30-minute observation which were generally inappropriate as the peer had permission to work quietly on a task together with another peer. Two of Subject 3's comments are as follows:

Subject 3 → Peer: "Don't whisper."

Peer → Subject 3: "X, I'm helping her with her work. You do your work and get on with it."

Subject 3 → Peer: "Do your work."

Peer → Subject 3: "And you do yours."

Subject 3 → Peer: "I am."

The facilitation of more appropriate interactive skills could be taught through role-playing in the classroom. One child could role-play on-task behaviour, and another gazing around the room. Another peer could model the types of comments that would be appropriate to each situation. Members of the class could relate their emotional reaction to the types of comments expressed. For the benefit of all the children, but particularly for the child with D.S. who is likely to have difficulty attending to the salient features of the exercise (Stratford, 1985), the session should conclude positively with the modelling of simple appropriate comments/gestures to one or two clearly defined situations.

On-Task Behaviour: The children with D.S. spent somewhat less time on-task than the contrast children, although as a group, they spent more time on-task during the present study than they did in the earlier study. While increased time on-task does not necessarily result in increased learning (Bray and Wilton, 1975), the ability to attend to classroom tasks increases the likelihood that the child with D.S. will benefit from placement in a non-restrictive environment. Lower rates of attention to task are normally considered to be a function of the low ability level of the child with D.S. But they may also be a function of less than completely appropriate instructional tasks. It is possible that the children with D.S. are less on-task than their peers due to insufficient modification to the mainstream programme. One teacher was well aware that the child was off-task for approximately one third of the time and had tried to obtain professional advice to remedy the situation, without any success.

She states, "I believe that our difficulties at the moment are not with programming but with the large gap that exists between the children she's working with and X... and trying to get an answer to 'What do you do with her for the other parts of the day?'...She doesn't even understand the stories I'm reading now."

A professional resource person needs to be available to teachers to help teachers resolve such issues. It was evident that most teachers were

unfamiliar with the functional life skills approach to mainstreaming, an approach that would help resolve issues such as the one mentioned above. Most teachers were working from a developmental learner approach or clinical treatment approach. Both these approaches were beginning to result in frustration for many of the teachers as the hopes of catching up with the norms or overcoming the deficits were becoming dimmer as the child matured. The functional approach is probably a more appropriate model to be working from. Biklen (1985) describes the functional approach as follows:

"This perspective begins by seeing the students as different but not too different. The educational strategy becomes: How can we help both the student and the student's environment adapt to each other? One can accommodate differences, even very big ones, by bringing the skills the student does have into correspondence with the skills others have and use." (pp 83-84)

Basically, this approach involves finding ways for children with D.S. to do the types of activities other children their age do or finding ways of doing things that if they didn't do them, someone else would have to. From this perspective, possible adaptations to the situation mentioned by the teacher earlier, where the child no longer understood the stories being read to the class could involve one of the following alternatives;

- 1) The child with D.S. could sit with the rest of the class and look at some age-appropriate picture books.
- 2) A classmate could read an age-appropriate book to her.
- 3) The teacher could take one new relevant concept from the story he/she is reading to the class, discuss it in detail with the class, including the child with D.S., using visual illustration(s). While the story is being read, the child with D.S. could draw a picture or construct a collage of the concept for the class,
- 4) The teacher could prepare a cue or prop for the story, such as clothes, visual aids or a model to illustrate one or more key concepts. The child could attend to the story with the class and the teacher would need to draw the child's attention to the props or cues during the relevant parts of the story.

In this way, mainstreaming is effectively taking place as appropriate modifications are being made to the mainstream. Such modifications are likely to result in greater levels of on-task behaviour as the tasks become more relevant. At the same time, the child experiences greater inclusion in age-appropriate classroom activities as the child is not being withdrawn when activities are too difficult. Mainstreaming requires the implementation of such creative problem-solving procedures.

To develop higher levels of on-task behaviour, it is likely that other factors also need addressing. In a study where class size was reduced to a manageable level and the teachers were provided with professional advice and support, a group of children who were multi-handicapped spent the same amount of time on-task as the children who were not handicapped (Hill and Whitely, 1985). The authors of this study suggest that this result was probably due to adequate programme planning and practical assistance avail-

able. There is no reason to believe that such results could not be obtained for the children in the present study if appropriate modifications to the mainstream could be made. Such modifications require access to regular quality professional assistance.

Reading Development: Generally, the children with D.S. were found to be making less progress in reading than had been anticipated. Previous studies have shown that children with D.S. are able to develop considerable competency in reading (Duffen, 1976; Pieterse and Treloar, 1981). This was confirmed by the excellent progress in reading made by Subject 11. There is evidence to suggest that "teaching reading to a young child with D.S. is quite a different process to teaching reading to a normal child" (Buckley, Emslie, Haslegrave and Le Provost, 1986, p 32). This being the case, it follows that ready access by teachers to qualified professional advice is a matter which needs urgent attention.

CONCLUSIONS

It has been most encouraging to discover that the children studied in 1984/5 have continued to develop socially and academically, albeit at a slower rate than their classmates. However, despite these positive findings, a number of issues need addressing. The most important of these issues is clearly the appointment of a professional who works alongside teachers, principals and parents in an on-going manner. Research to date confirms that accessible suitably qualified professional support is strongly related to positive outcomes following mainstreaming (Larrivee and Cook, 1979; Ward and Center, 1988; Haworth, 1989). Greater attention also needs to be focussed on issues such as manageable class sizes, trained practical support, appropriate inservice training for teachers, equity of resources e.g. reading recovery, the use of functional curricula, and regular monitoring of all aspects of the child's development. The data indicate that the normalised experiences available in the regular classroom continue to benefit these children, regardless of their developmental level.

Acknowledgement

Grateful acknowledgement is extended to Dr P.R. Champion for her valued comments during the preparation of this paper.

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APPENDIX 1

CODING SCHEDULE FOR THE CLASSROOM OBSERVATIONS

COLUMN 1: Type of interaction

- C Peer-initiated to subject. Peer verbally or physically (e.g. by tapping on shoulder) to initiate interaction with the subject and the subject engages in the interaction by making eye contact and/or engaging verbally and/or complying with the request (e.g. by giving the subject what he/she asked for).
- Cv Subject-initiated to peer (verbal). Subject initiates interaction verbally and peer engages in the interaction by making eye contact and/or engaging verbally and/or complying with the request.
- Cn Subject-initiated to peer (non-verbal). Subject initiates interaction physically and peer engages in the interaction by making eye contact and/or engaging verbally and/or complying with the request.
- Av Subject-initiated to adult/teacher (non-verbal). Subject initiates interaction with the adult/teacher and the adult/teacher engages in the interaction by making eye contact and/or engaging verbally and/or complying with the request.
- An Subject-initiated to adult/teacher (non-verbal). Subject initiates interaction physically with the adult/teacher and the adult/teacher engages in the interaction by making eye contact and/or engaging verbally and/or complying with the request.

COLUMN 2: Behaviour

- / On-task. Eye contact to the teacher, task materials, or peer who is performing in front of the class. The child must be on-task for at least 6 out of 10 seconds. On-task behaviour includes taking out and tidying up materials, lining up in a row, sitting on the mat, etc, if this is the task specified by the teacher.
- X Off-task. Eye contact not directed to the teacher, task materials or peer who is performing in front of the class. Staring into space, wandering about the room, fiddling, engaged in the wrong activity, talking about matters not related to the present task. Child must be off-task for at least 6 out of 10 seconds.
- D Disruptive behaviour. Behaviour which interferes with the tasks of others. E.g. hits peer, throws objects, talks to peers when not permitted, speaks out of turn, makes loud noises, climbs on furniture when required to sit. Includes verbal aggression.

APPENDIX 2

CODING SCHEDULE FOR THE LUNCHTIME OBSERVATIONS

- U Unoccupied behaviour. Standing, sitting, squatting, facing away from other children, staring into space, not engaged in any form of observable activity. Includes self-stimulatory behaviours, e.g. hand-flapping.
- O Onlooker. Subject's face and eyes oriented towards another child or children engaged in an activity within a distance of six feet.
- S Solitary play. Subject is engaged in an observable activity with toys or imaginary objects but is totally uninvolved with other children.
- P Parallel play. Subject is engaged in same activity as another child or children but plays beside the other(s) within a distance of approximately three feet. Subject does not interact with the other child or children although he/she may imitate their play.
- A Associative play. Physical or verbal contact involving child or children which may involve patting, kissing, hand holding, touching, cuddling, smiling, chasing, following, or verbal contact where conversation concerns a common activity or interest.
- C Co-operative play. Subject engages appropriately in playing the role defined by the game or group activity which may be a formal game such as soccer or may be a role in a make-believe game organized by the group. There is a marked sense of belonging or not belonging to the group. The control of the group is in the hands of one or two members who direct the activities of the others.
- I Inappropriate interaction. This category may be used in addition to Associative (A) and Co-operative (C) types of play when the subject interacts inappropriately with another child through the use of physical aggression e.g. by pushing, shoving, tripping, scratching, biting, hair pulling, kicking, pulling clothes or through the use of inappropriate communication e.g. swearing, name calling, or by getting in the way of other children or by interfering in a group activity.
- TT Talking to the teacher or another adult (e.g. parent, caretaker, visitor).