

THE ADJUSTMENT TO SCHOOL OF FIVE DOWN'S SYNDROME CHILDREN
FROM THE I.H.C EARLY INTERVENTION PROGRAMME.

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ABSTRACT

The present study investigated the adjustment to school of five Down's Syndrome children - four of whom had participated in the I.H.C Early Intervention Programme since birth. Direct observation was used to record the Down's Syndrome child's interactions with peers and teachers, disruptive incidents, on and off-task behaviours, compliance with instructions in the classroom and amount of social play in the playground. The Down's Syndrome children's progress was assessed using 40 developmental tasks selected from the Down's Syndrome Performance Inventory (D.S.P.I). In addition, data on the teachers' attitudes towards integration and their perceptions of the Down's Syndrome child's behaviour was collected through a written questionnaire. The observations indicated that the Down's Syndrome children were performing better in the classroom than the teachers' reports suggested. The four children who took part in the Early Intervention Programme until school entry continued to acquire new skills at the same rate as during their participation in the Programme. They were also engaged in social play for similar amounts of time as the Contrast children. The fifth subject made the least amount of progress and engaged in social play for lower proportions of time as the Contrast children in her class.

The data raises a number of implications for the integration of Down's Syndrome children. Teacher attitudes should be investigated before placement in a regular class is made. Teachers could also benefit from developing appropriate management strategies, such as giving specific instructions, rewarding on-task behaviour and teaching the Down's Syndrome child to work in a group situation. Feedback from the present study concerning the discrepancies between teacher beliefs about what Down's

Syndrome children do and how they interact with the child could prove beneficial in altering their beliefs and management of the child.

INTRODUCTION

The general aim of the present study was to describe the adjustment to school of five Down's Syndrome children. Four of the five children had taken part in the Early Intervention Programme for Down's Syndrome children funded by the New Zealand Society for the Intellectually Handicapped (Champion, 1982). The fifth child had taken part in the Early Intervention Programme from birth until age 4, after which she participated in a Doman-Delacato Programme (Doman, 1974) for two and one half years until school entry. At the time of the study, each of the children, except the child who participated in the Doman Programme, had been attending a regular state primary school for at least one year, while the fifth child had attended for one term.

The study had two main aims. The first was to ascertain whether or not the Early Intervention Programme had provided these children with sufficient skills to enable them to benefit from attendance at a regular primary school, and if not, to identify any additional skills which could be incorporated into the Early Intervention Programme for the benefit of the Down's Syndrome children currently enrolled. The second aim was to provide feedback to classroom teachers with a view to improving the Down's Syndrome child's educational programme in the mainstream.

The last two decades have seen an increase in the numbers of handicapped children integrated in regular classrooms and a trend away from their attendance at special schools and classes. This trend which started in the U.S.A during the 1960's, has occurred due to a number of factors. First, the results from evaluation studies of

special education classes indicated negative social and academic effects as well as the presence of other adverse effects, such as reduced level of stimulation, diagnostic labelling and social isolation (Dunn, 1968). Secondly, there has been an increasing awareness of human rights including the right of the handicapped to a "normalized" environment (Nirje, 1969; Wolfensberger, 1972; Vickers, 1981). This right has been described by Nirje:

"The normalization principle means making available to all mentally retarded people, patterns of life and conditions of everyday living which are as close as possible to the regular circumstances and ways of life of society" (Nirje, 1969, p.181).

Thirdly, the passing of U.S.A Public Law(94-142) in 1975 has required all handicapped children to be educated in the "least restrictive environment" which for most is attendance at a regular school. Whenever a child is removed from from a regular classroom, then extra justification must be provided as to why he/she needs a more restrictive environment. Fourthly, there has been a growing body of research indicating that handicapped children of all ages, educated in special classes show no advanced academic achievement over those educated in regular classrooms (Budoff and Gottlieb, 1976; Kaufman, Gottlieb, Agard and Kukic, 1975; Kavale, 1979; Frampton, 1981; Espiner, Wilton and Glynn, 1984).

One of the aims of the Early Intervention Programme in which the subjects of the present study took part was to provide the children with sufficient skills for them to benefit from regular class placement. Provided the children graduating from this programme possessed skills which resembled those of their non-retarded peers, they should appear to derive greater benefit from placement in regular classes than in special classes where their performance might be impaired by factors such as lowered expectations, reduced levels of stimulation and

labelling. Previous research on the subjects of the present study during infancy (Champion, 1982) and during regular preschool placement (Gibbons, 1981), indicated that they did in fact possess many behaviours which more closely resembled those of their non-retarded peers, thus school placement with non-retarded peers seemed an appropriate goal. Such integration is also in accordance with the philosophy of the New Zealand Society for the Intellectually Handicapped (N.Z.S.I.H., 1979).

A number of researchers have studied the effects of integrating the mildly retarded. Some have found significant advantages when children were transferred from special to regular classes (Grosenick, 1971; Guerin and Szatlocky, 1974; Macey and Carter, 1978; and Espiner, Wilton and Glynn, 1984). They found that the growth rate in school achievement for students integrated into regular classes was maintained or superior to the growth rate of students retained in the special classes. Not only has regular class placement been found to be beneficial in terms of academic gains but also in terms of social behaviour and acceptance. The social participation of junior school mildly retarded children has been shown to be higher in integrated settings than special class settings (Smart and Wilton, 1975; Ziegler and Hambleton, 1976; Espiner, Wilton and Glynn, 1984).

Other studies have found no significant differences in academic achievement and social development between special and regular class placement (Budoff and Gottlieb, 1976; Blatt and Garfunkel, 1973; Smith and Kennedy, 1967).

Where handicapped children have failed to benefit from integration a number of explanations have been advanced. Gresham (1982) has argued

that efforts to mainstream have frequently been misguided because handicapped children are often placed without the social skills necessary for peer acceptance. There is considerable evidence to support the view that handicapped children may be rejected by non-handicapped peers and end up socially isolated. Gresham(1982), Gannon(1983) and Evans(1983) on reviewing the literature on mainstreaming concluded that:

- i) handicapped children often interact less frequently or more negatively with non-retarded peers,
- ii) handicapped children are often poorly accepted by non-handicapped peers,
- iii) handicapped children often do not imitate their non-retarded peers unless specifically taught to do so.

Handicapped children may also be rejected by their teachers and hence end up receiving quite different educational experiences. An important variable relating to the success or lack of success of mainstreaming is that of teacher attitudes. Shotel, Iano and McGettigan (1972) state that many regular class teachers not only lack appropriate skills but also hold negative attitudes which interfere with the quality of the learning experiences provided for the handicapped child. Many teacher beliefs have little empirical data to support them, especially as regards school-age children(Forness, 1979). In preschools where Down's Syndrome children and other retarded children were integrated, it was found that they did not take up excessive amounts of teacher time despite this being a commonly held belief(Kaplan-Sanoff, 1979; Guralnick, 1981; Gibbons, 1981). While such beliefs may be unfounded they can nevertheless influence the classroom experiences of the handicapped child. For example, a number of studies have found that teachers tend to give less motivating and fewer positive interactions to perceived

low achievers than to perceived high achievers (Brophy and Good, 1970; Chapman, Larsen and Parker, 1979; Parker, Larsen and Roberts, 1981; Raber and Weisz, 1981; Munroe, 1982). Finally, teachers may lack the skills or lack the confidence in their own ability to teach handicapped children. Gickling and Theobald (1975) and Shotel, Iano and McGettigan (1972) for example, found that many teachers did not know how to plan or implement remedial programmes. This kind of deficit may affect the quality of the educational experiences which the integrated, handicapped child receives.

Some researchers have been aware of the potential difficulties faced by regular teachers and non-handicapped peers when a handicapped child is integrated into a school and have shown ways in which these problems can be overcome. For example, lack of experience and direct contact with handicapped children have been shown to be significantly related to negative teacher attitudes towards mainstreaming (MacMillan, Jones and Meyers, 1976). To overcome this type of problem, Harasymiw and Horne (1976) instigated a programme for teachers giving them direct experience in teaching mildly handicapped children as well as academic input in areas such as how to plan appropriate programmes. After the programme, teachers viewed integration more favourably and perceived themselves as more capable of meeting the needs of a handicapped child in their class. It is interesting to note that Shotel, Iano and McGettigan (1972) found that the mere presence of a handicapped child in the school with no direct involvement or extra teacher training did not improve teacher attitudes. It seems that teachers require both direct experience and courses in special education for any changes in attitudes to occur.

Rose(1981) illustrated that integration can "work" when appropriate instructional strategies are used. He observed low levels of interactive play between 9 and 10 year old handicapped children and non-retarded peers. Instead of concluding on the basis of this data, that integration "does not work", he introduced a 6 week peer tutoring system in the playground where non-retarded peers taught the handicapped children appropriate play skills. This resulted in a significant increase in social play as well as producing more positive attitudes in the non-retarded peers.

A number of researchers have argued that evaluative studies of integration are unlikely to generate meaningful results unless teacher-related variables such as attitudes, educational background, years of teaching experience and so forth, are taken into account during the evaluation. Jones, Gottlieb, Guskin and Yoshida(1978) state that in many evaluation studies, variables such as teacher experience, competence, attitudes, specific characteristics of the subjects and instructional strategies to facilitate the child's integration have not been adequately described. Since mainstreaming involves more than just the physical presence of a handicapped child in a classroom of non-retarded peers, it may well be that the studies which found negative effects for mainstreaming are studies which have involved teachers who were unwilling or unable to provide instructional experiences suited to the needs of the handicapped pupils.

The Jones et al(1978) critique had clear implications for the present study. Informal discussions with the classroom teachers prior to the study revealed that some did not wish the Down's Syndrome child to attend school full-time. The reasons most commonly given were that the Down's Syndrome children were too disruptive, lacked sufficient

concentration, did not follow instructions and tended to take up too much of the teacher's time to the detriment of the other children.

It seemed important therefore that evaluation of the classroom experiences of the children in the present study should include measures of the class teacher's attitudes and behaviour towards the Down's Syndrome child as well as measures of the child's performance in class. It was also considered important to get some measure of peer acceptance or rejection.

Researchers investigating classroom processes may rely on teacher and pupil reports or observe directly what is taking place. Few studies have focussed specifically on what takes place when a retarded child is integrated into a classroom with non-retarded peers. The use of sociometric measures, social adjustment scales and teacher judgements to assess the effects of integration as used in studies such as those by Goodman, Gottlieb and Harrison(1972), Gottlieb and Budoff(1973), Larrivee and Cook(1979), Salend and Lutz(1984) provide an incomplete picture of what is actually taking place. There is considerable evidence to suggest that discrepancies occur between what teachers perceive is happening and what is actually happening in the classroom(Rossiter, 1982). This also applies to what children say they do and what they actually do(Dunlop, Stoneman and Cantrell,1980; Rossiter, 1982). Rossiter found that while 50 per cent of the teachers in her study stated that they regularly used rewards for appropriate behaviour, only nine per cent were observed to be making consistent use of rewards.

The observation that teacher perceptions, sociometric surveys, rating scales and so forth do not necessarily describe what is actually happening in the classroom had implications for the present study. For example, there seemed little value in using sociometric ratings by peers to obtain

data on the Down's Syndrome child's social play for two main reasons: First, friendships during the preschool and junior school years are often unstable and transient (Roedell, Slaby and Robinson, 1977), so the single measure provided by a sociometric survey is likely to yield a less than adequate measure of friendships. Research by Dunlop, Stoneman and Cantrell (1980) indicated that repeated administrations of a "happy face" instrument yielded data which was inconsistent with direct observations of the behaviour over an extended period of time. Secondly, sociometric surveys, usually ask children to nominate two or three children they would like to play with, most of all. Even if a child is not nominated by peers, it does not necessarily mean that the child is rejected. There is a difference between accepting a child and choosing him/her as a "best friend." Sociometric measures seldom take this distinction into account.

To avoid the limitations of indirect measures, direct observation over a period of thirteen weeks was selected for the present research. To gain knowledge about the Down's Syndrome child's social interaction and acceptance, he/she was observed during both the structured activities of the classroom and the unstructured activities of the playground at lunchtime. The present study explored both social development and academic development. There is evidence to suggest that when children play with peers, social skills, language skills and moral attitudes may all be affected (Stocking, Arezzo and Leavitt, 1980). These benefits cannot accrue to children who do not take part in social play. Also the definition of mainstreaming used by Kaufman, Gottlieb, Agard and Kukic (1975) states that there must be social integration with normal peers as well as instructional integration. Thus, if social integration is one of the goals, then any evaluation study must examine the extent to which it is taking place.

The assessment of the child's academic progress or "development", especially as regards young school-age children such as the subjects of the present study is not without difficulty. Traditional global measures such as the IQ score have been found to be unreliable, unstable, unrelated to junior school achievement and inappropriate as a measure of preschool development (Ballard, 1983). This point is illustrated in an evaluation study of Down's Syndrome children integrated in regular schools by Pieterse and Center (1984). Despite the children having IQ scores below 70, the data indicated that they were benefitting from the integration.

Other more specific measures of academic achievement, such as measures of spelling, reading, mathematics and written language were also unsuitable for the present study because children of this age are only beginning to develop those kinds of skills.

The Early Intervention Programme uses a developmental checklist - the Down's Syndrome Performance (D.S.P.I) (1980) as a means of assessing the child's existing skills, then uses this information to establish what skills the child needs to learn next. In this way, the emphasis is on the individual child's needs as opposed to comparing the child to others. Data on each of the subject's progress had been systematically recorded on a weekly basis since birth. For this study, it seemed appropriate to continue using this measure of progress since there was comparative data on each of the subject's rate of progress.

A problem that arises when children with obvious physical characteristics such as Down's Syndrome are integrated into regular schools is that teachers have difficulty in isolating the children's behaviour from that of their handicapping condition (Notkin-White, 1980). In other

words, a behaviour engaged in by a Down's Syndrome child is more likely to be labelled deviant, than the same behaviour elicited by a non-retarded child. An anecdotal example from a Down's Syndrome child in the present study illustrated this point.

On a school pre-entry visit, the teacher noticed the Down's Syndrome child yawn once. She concluded that it was time for him to go home as he was too tired to cope with any more school. She did not seem to notice that the room was warm and that the other children in the class [and the researcher] had been consistently yawning all morning.

This illustrates the point that one cannot make statements about the behaviour of Down's Syndrome children if one does not know what non-retarded children do in the same setting. In observing Down's Syndrome children integrated into preschools, Gibbons(1981) found that both Down's Syndrome and non-retarded children spent relatively high proportions of time in solitary play. If data was collected on Down's Syndrome children alone, it may have led to the conclusion that Down's Syndrome children are isolates and not accepted by the other children. However, error can be avoided by comparing the behaviour of Down's Syndrome children against that of non-retarded peers in the same environment. This was the procedure adopted for the present study.

To evaluate the adjustment to school of the Down's Syndrome children selected for the present study, answers were sought to the following questions:

- 1) How do teacher's perceptions of the behaviour of the Down's Syndrome children correspond with what they actually do?
- 2) How much time is the teacher spending with the Down's Syndrome children in comparison with non-retarded peers?
- 3) What qualitative differences (if any) exist between teacher's interactions

with the Down's Syndrome and non-retarded children?

- 4a) Do the Down's Syndrome children initiate interactions with their peers in the classroom as often as do their non-retarded peers?
- 4b) Do peers initiate interactions with the Down's Syndrome child in the classroom as often as they do with non-retarded peers?
- 5) Do the Down's Syndrome children engage in more disruptive incidents in the classroom than their non-retarded peers?
- 6) Are the Down's Syndrome children spending less time "on-task" than their non-retarded peers?
- 7) How do the Down's Syndrome children interact with their peers in the unstructured playground situation?
- 8) Are the Down's Syndrome children acquiring social and academic skills and is their rate of progress similar to that observed during their participation in the Early Intervention Programme?

METHOD

Subjects and Settings.

Five Down's Syndrome children who were attending their local primary schools were the subjects of the study. Four had been diagnosed as Trisomy 21 on a chromosome test and one had been diagnosed as a Translocation. Three Contrast children were selected from the class attended by each subject by asking the class teacher to nominate the three least competent children in the class who were the same sex as the Down's Syndrome child. Most of the Contrast children were one to two years younger than the Down's Syndrome children. This was because there were often no "least competent" children of comparable age to the Down's Syndrome child in the class.

Observations of the Down's Syndrome children were restricted to those occasions when they were taking part in classroom activities with the rest of the children in the class. Observations were not made during periods when a teacher aide withdrew a child and worked with him/her on a one-to-one basis. However, if a Down's Syndrome child received help on a one-to-one basis from a teacher or aide as part of an on-going classroom activity and the same type of help was given to other children, observations continued.

The content and structure of the five classroom programmes were similar. There were no open plan classrooms and there was an emphasis on teacher-initiated activities, although children were frequently allowed to choose their own activity after completing work assigned by the teacher, for example, after completing their printing or drawing. The special class attended by one subject differed in that it offered

activities such as cooking, woodwork and physical fitness training as part of the daily programme.

The five subjects have been code named Susan, Ben, David, Kate and Sarah.

Susan who was 7 years 2 months of age, had been attending school for one year. Her time at school had been increased over the year and she was currently attending five mornings and three afternoons per week. She spent the remaining two afternoons at home. The Contrast children in Susan's class ranged in age from 5.1 to 5.3 years. At the commencement of the study, the class size was 28, but after the third observation, it was reduced to 17 when some of the children progressed to the next class. The classroom teacher was a female and had been teaching for approximately twenty years.

Ben, who was 6 years 3 months of age, attended a large suburban school. He was initially integrated into the regular infant classroom on a part-time basis for one to two months, but then transferred to a special class in the school as the classroom teacher felt that he could not cope. At the commencement of the study he was attending the special class four mornings and two afternoons a week and was integrated into the regular infant classroom for one full day per week. The remaining two afternoons were spent at home. This arrangement had been in operation for ten months. The special class had nine children on the roll and was taken by a male teacher who had a degree in education. He had been teaching for three years. The ages of the children in the special class, excluding Ben, ranged from 8.0 to 12.0. The Contrast children children selected from the special class were the three youngest children, regardless of sex. These children included two boys and a girl, whose ages ranged from 8.0 to 9.5 years. There were 28 children in

the regular infant class and the classroom teacher was a female who had been teaching for approximately twenty five years. The Contrast children selected from the infant classroom ranged in age from 5.0 to 5.3 years. Ben was observed on four occasions in the special class and on two occasions in the integrated class.

David was 6 years 9 months of age and attended a country school, 20 kilometers from Christchurch. His attendance at school was full-time, that is, five mornings and five afternoons a week. His parents were very involved in the school through their involvement in the P.T.A and the school committee and the mother was a school teacher who often relieved at the school. There were nine children in David's class. The Contrast children were all 6 years of age and the classroom teacher was a female who had taught for approximately 20 years.

Kate, the child diagnosed as having Translocation Down's Syndrome was 7 years 2 months of age. She started school on a full-time basis at the beginning of the year and had attended for one term at the commencement of the study. For the past two-and-a-half years, she had taken part in an intensive Doman-type treatment programme (Doman, 1974) and, prior to this, she participated in the I.H.C Early Intervention Programme. Kate's class had a roll of 25 pupils and the classroom teacher (female) had been teaching for approximately 15 years. The Contrast children ranged in age from 5.3 to 5.5 years.

Sarah was 7 years of age. She attended a country school 16 kilometers from Christchurch. She attended four full days a week and spent one day a week at home. Sarah was in a composite class of J2 and J3 (6 and 7 year old children), hence the Contrast children were of a comparable age. Their ages

were 6.2, 7.0 and 7.4 years respectively. The class was taught by a male teacher with a degree in education and who was in his second year of teaching. He left after the second observation and a relieving female teacher, also with a degree in education took the class until the end of the term. She had taught for five years.

Measures.

To measure teacher attitudes towards mainstreaming, an attitude scale was constructed which asked the teachers to indicate the extent of their agreement or disagreement with various ideas concerning the placement of a Down's Syndrome child in their class. This questionnaire is reproduced in Appendix A. Six items (numbers 1,3,6,8,9,12) measured attitudes towards integration in general, while six items (numbers 2,4,5,7,10,11) were concerned specifically with the teacher's perceptions of the Down's Syndrome child in their class. These two groups of items were scored separately. Teachers were asked to indicate the extent of their agreement or disagreement on a five-point scale ranging from strongly agree to strongly disagree. Items 3,8,11 and 12, were scored from 1 to 5 while items 1,2,4,5,6,7,9 and 10 were scored from 5 to 1. Thus, it was possible to obtain an extreme score of 30, if one strongly disagreed with integration or had negative perceptions of the Down's Syndrome child in the classroom and a score of 6 if the teacher felt extremely positive about integration or the Down's Syndrome child in the classroom.

A parallel form of the questionnaire was also completed by the principal and two teachers in the junior department of each school. The questionnaire completed by these teachers did not refer to the Down's Syndrome child but rather asked the teachers to indicate their attitudes towards the integration of Down's Syndrome children in general. The questionnaire was

given to the principal and other teachers in order to ascertain whether the classroom teacher's attitudes merely reflected the school's attitude towards integration or whether the classroom teacher's attitude differed from that of other teachers at the school. The questionnaires were given to the teachers on the second-to-last day of the observations.

Each subject was visited six times during the study. Three types of observation procedures were used during each visit: a 30-minute interval recording observation in the classroom, a 15-minute running record of subject behaviour in the classroom, a 15-minute running record of Contrast child behaviour in the classroom, and a 30-minute interval recording observation of social behaviour in the playground.

Direct observations of the subjects' and teachers' behaviours were of two kinds: (a) Structured observations and (b) running record observations. Structured observations were made in the classroom and playground and running record observations were made in only the classroom situation.

The structured observation were used to record the following kinds of classroom behaviours: (a) the type of interaction the subject was engaged in, (b) whether the subject was on-task, off-task, or disrupting others, (c) the teacher's use of praise and reprimands, and (d) the type of teacher instructions given and the proportion of those complied with. The definitions of each of these classes of behaviour can be found in Appendix B.

The Down's Syndrome child and each of the three Contrast children were observed in sequence using an interval recording procedure. Each subject was observed for 10 seconds and the next 5 seconds were used for recording. Observation sessions were 30 minutes long.

An electronically timed audio signal was used to signal the start of each 10-second observational interval. Behaviours the Down's Syndrome child or any of the three Contrast children engaged in, were recorded only when they occurred during the particular interval that the subject was being observed.

Structured observations were also used to record the child's social interaction in the playground. Playground interaction was recorded using a slightly modified version of the Parten Social Participation Scale (Parten, 1932). Playground interaction was classified using the following eight categories: (a) Unoccupied behaviour, (b) onlooker, (c) solitary independent play, (d) parallel play, (e) associative play, (f) co-operative play, (g) inappropriate associative play. This category was added as it seemed important to investigate whether the Down's Syndrome children engaged in significantly higher proportions of play which would make them unpopular and rejected by their peers. Definitions of each of these categories of social interaction can be found in Appendix C.

Interval recording was used to obtain information concerning the child's degree of social participation in the playground. During a 30-minute observation period, the Down's Syndrome child and one Contrast child were observed alternately for 10 seconds, followed by 5 seconds for recording. The same Contrast child was observed for the whole observation period, but a different Contrast child was observed on each visit. Thus, with six 30-minute observations in total, each Contrast child was observed alternately with the Down's Syndrome child for two of those observations. As in the classroom observations, an electronic timer was used to indicate the beginning and end of intervals. During the 10-second observation interval, the category the child's behaviour fitted into for at least 6

out of the 10 seconds was recorded. A summary of what the child was doing was also recorded beside the appropriate category.

Running record observations in the classroom were made for fifteen continuous minutes on the Down's Syndrome child and one Contrast child. The same Contrast child was observed during each of the six classroom visits. For ease of recording and later analysis, each running record observation was divided into thirty, 30-second intervals. A separate electronic timer was used to indicate when each 30-second interval had elapsed. The running records were used to collect as much information as possible about what the child did, the language used, the teacher's behaviour, materials used, involvement with peers and the type of activity being engaged in.

The overall progress of each subject was assessed using a 40 Item subset of the Items from the Down's Syndrome Performance Inventory (Hayden and Dmitriev, 1971). During their participation in the Early Intervention Programme, each of the subjects had been assessed at weekly intervals and the mastery of new skills recorded on the Down's Syndrome Performance Inventory (D.S.P.I) as soon as they had been acquired. In order to assess the child's progress at school, it was decided to continue using the D.S.P.I. so that the child's rate of progress at school could be compared with their rate of progress while enrolled in the Early Intervention Programme.

A list of 84 developmental tasks drawn from the cognitive, language and fine-motor areas of the D.S.P.I. was initially compiled. All Items were taken from Level 4 and Level 5 of the D.S.P.I. Items were selected which children could be expected to acquire prior to school entry, during

the first year of school and after a year's attendance.

In order to isolate those skills which most average ability children would acquire during their first year of school, the pool of 84 developmental tasks was given to five people with postgraduate qualifications in education and who were involved in the teaching of child development to either students or parents. They were asked to i) delete any tasks they thought the majority of average ability 4-year olds would have mastered prior to school entry and ii) delete any tasks which in their view, the majority of average ability 5 and 6 year olds would normally have mastered prior to J 3 or standard 1.

Items that were not deleted by any of the five raters and those that were deleted by only one rater out of the five, formed the final list of 40 developmental tasks. The list of 40 items used for the assessment of the Down's Syndrome children's progress can be found in Appendix D.

To ascertain each child's rate of progress, the number of skills (from the list of 60 developmental tasks) that each child had acquired one year before starting school and on school entry were identified from the original D.S.P.I. on each child. Assessment of the skills acquired one year after school entry was by direct observation. The criteria for mastery were those stated in the D.S.P.I. Manual. The majority of skills could be observed in the classroom situation while the structured and running records were being undertaken. Where certain skills were not observed, the researcher visited each subject in the home and assessed the child's skills directly.

Procedure.

Prior to the observations, a visit was made to each school to inform the principal and class teacher about the aims and purposes of the study. Appointments were made for six 2-hour visits (three morning visits and three afternoon visits) distributed evenly throughout the second term (13 weeks). All five children were observed concurrently, although not in strict rotation, since only two children attended school every day and children were absent from time to time. However, at no stage were the observations on any one child more than two sessions ahead of any other. Three visits were made a week. One week involved two morning visits and one afternoon visit while the following week involved two afternoon visits and one morning visit. This was the pattern of observations throughout the study. Most of the observations took place one hour before lunch and one hour after lunch, although this varied depending on when the teacher aide withdrew the subject to work with him/her individually. In some of the morning observations, the subjects were observed earlier than one hour before lunch as the teacher aide withdrew them for individual work during the hour before lunch. The subjects were observed for one and one half hours each visit during the 13-week observation period. The structured observations and the running record observations were done in random order.

Reliability.

Inter-observer reliability checks were obtained on the structured interval recording observations in the classroom and playground for seven (23%) of the visits. These reliability checks were distributed evenly throughout the study. In order to obtain measures of reliability for the classroom observations, the following procedure was used. At the end of each 10-second recording interval, four separate aspects

of classroom behaviours were recorded. Disagreements between the two observers were recorded as disagreements whenever the two observers recorded different codes for any one of these four types of behaviour. The percentage of agreement between the two observers was calculated by dividing the number of agreements on each of the four subcategories across all recording intervals by the number of agreements and disagreements on the four subcategories across all intervals for that session.

Three 15-minute running record reliability checks were made throughout the study. The running records were divided into naturally occurring units of behaviour which had readily defined beginning and end points. These units were termed episodes for the purposes of this study. Those episodes which had particular relevance for the present study were then categorized according to one of the following descriptions each instance the episode occurred: (a) group instruction related to academic content, (b) group instruction related to management of academic task, (c) individual instruction related to academic content, (d) individual instruction related to management of academic task, (e) complied or did not comply with instruction, (f) performed task correctly or incorrectly, (g) general teacher attention to appropriate behaviour, (h) specific teacher attention to appropriate behaviour. A two-minute example where the subject is referred to as X and which illustrates how the observation was divided into episodes with the appropriate coding description underneath, follows:

X is reading aloud alone in a small group taken by the teacher.

Teacher says, "Very good. Lovely reading."
(Specific teacher attention to appropriate behaviour)

Teacher says to the group, "Have you seen a beehive?"

X replies with the group, "Yes."

X listens to a peer reading aloud in the group.

Teacher says to the group, "Point to the word, 'are'."
 (Group instruction related to academic content)

X does not, but continues to look at book.
 (Does not comply)

Teacher says to the group, "Hands up if you know this word."
 Teacher writes the word, 'one' on the blackboard.
 (Group instruction related to academic content)

X leans over her book and puts her hand up. Teacher selects her
 to answer.
 (Individual instruction related to academic content)

X points to a word,
 (Complies)

but points to the wrong word.
 (Performs task incorrectly)

X reads along with teacher and group.

At the end of each 15-minute observation, the number of episodes coded identically by both observers (according to one of the eight coding categories listed previously), were divided by the number of episodes of agreements and disagreements multiplied by 100.

Inter-observer reliability was obtained on the modified version of the Parten Scale (1932) used to observe playground behaviour, on seven visits (23%) throughout the study. After each 10-second interval, the category the child's behaviour fitted into for at least 6 out of those 10 seconds was recorded. Disagreements occurred when the two observers coded differently categories in the same interval. The percentage of agreement was computed by dividing the number of agreements of intervals across all seven visits by the total number agreements and disagreements.

RESULTS

The present study collected data on the types of processes (experiences) affecting the Down's Syndrome child as well as his/her performance in the school setting. Data from the processes affecting the Down's Syndrome child are presented in the following order: teacher attitudes, teacher interaction (attention to appropriate and inappropriate behaviour and types of questions directed to the subject) and peer initiated interactions towards the subject. Data concerning the Down's Syndrome child's behaviour or performance in his/her school environment are presented in the following order: time on-task, disruptive behaviours, subject initiated interactions to peers and teachers, number of group and individual instructions and percentage complied with, time spent in social play and the Down's Syndrome child's developmental progress.

Reliability.

Reliability measures were obtained for each of the three direct observation measures used during the course of the study. For the structured observations, a total of seven reliability checks were made. Using the structured interval recording schedule to record classroom behaviour, inter-observer reliability across all four subcategories was calculated at 98% on each visit except on the second visit where agreement was 99%.

Three 15-minute running records made on the first, middle and last visit of the study by both observers were used to obtain reliability data. The first observation (on a Down's Syndrome child) contained 47 episodes of the eight particular behaviours reported in this study and

the two observers agreed on the coding of 44(94%) of these.

The middle observation involving a Contrast child contained 22 episodes of the eight behaviours and both observers agreed with the coding of 18(82%) of these.

In the final observation(Down's Syndrome child), there were 20 episodes containing the eight specific behaviours reported in the present study. The two observers agreed with 17 of these, that is, there was 85% agreement between the records of the two observers. It must be noted that there was only one disagreement in the running records concerning the actual coding of the data. However, the percentage of reliability agreement was lower than for the structured observations due to the second observer omitting episodes of behaviour.

Inter-observer agreement across all seven categories on the modified version of the Parten Scale of Social Participation ranged from 90% to 98%, with a mean of 95%.

Teacher Attitudes.

The scores of each of the teachers who completed the Integration Questionnaire are presented in Tables 1 and 2. The scores depicted in Table 1 are the sum of the scores for each teacher on the six items concerning attitudes towards integration. The same process was used to derive the scores in Table 2, concerning teacher perceptions of the Down's Syndrome child's behaviour. The total scores represent the extent of teachers' agreement or disagreement with the integration of Down's Syndrome children and statements concerning the behaviour of Down's Syndrome children.

Table 1

Scores of the Class Teachers, Contrast Teachers and Principals on the Attitudes to Integration Section of the Integration Questionnaire.

School Attended by Subject	Principal	Teacher 1	Teacher 2	Mean	Classroom Teacher
Susan	13	17	22	17.33	16
Ben	18	18	18	18.00	26 ¹
David	20	10	14	14.66	10
Kate	17	17	17	17.00	19
Sarah	19	13	15	15.66	16
					18 ²

Table 2

Scores of the Class Teachers, Contrast Teachers and Principals on the Perceptions of Down's Syndrome Children's Behaviour Items of the Integration Questionnaire

School Attended by Subject	Principal	Teacher 1	Teacher 2	Mean	Classroom Teacher
Susan	16	19	27	20.66	21
Ben	22	23	22	22.33	27 ¹
David	27	16	19	20.66	8
Kate	18	16	16	16.66	15
Sarah	20	17	16	17.66	14
					21 ²

¹ Ben's regular class teacher

² Sarah's second teacher who took up the position half way through the term.

As can be seen in Table 1, the classroom teachers of Susan, Kate and Sarah had scores which resembled those of the mean for the other three teachers in the school, thus indicating that they did not feel more negative or positive towards integration than those teachers who did not have the direct experience of having a Down's Syndrome child integrated into their class. Since the maximum positive score that could be obtained was 6 and the most negative score was 30, it could be seen that these teachers had scores which fell mid-way between the two extremes.

The score of Ben's teacher on the Integration Questionnaire indicated that her attitudes towards mainstreaming were considerably more negative than the contrast teachers at the same school. These negative attitudes were further elaborated by a two page report she wrote and added to the questionnaire for the 'benefit' of the researcher.

At the other extreme was David's teacher who displayed very positive attitudes towards integration as indicated by her low scores on both parts of the questionnaire.

Table 2 presents the teacher's scores on the six items concerning the classroom teacher's perceptions of the Down's Syndrome child's behaviour and the perceptions of the contrast teachers and principals towards the behaviour of Down's Syndrome children generally. The scores overall are similar to that of the six Attitudes to Integration items. Susan's, Kate's and Sarah's classroom teachers displayed similar neutral attitudes towards the behaviour of the Down's Syndrome children and their scores did not differ markedly from the mean.

The high score of 27 from Ben's teacher indicates extreme negative

perceptions as regards his behaviour. The reverse holds for David's teacher. Her score of 8 is only just over the score of 6 - the most positive score possible.

Comparisons between the classroom teachers, contrast teachers and principals must be made with caution, since classroom teachers were asked to relate the items specifically to the Down's Syndrome child in their class, while the other teachers referred to Downs's Syndrome children generally.

The Down's Syndrome children's class teachers, contrast teachers' and principals' scores on the Attitudes towards Integration items of the questionnaire varied considerably. On Item 1, which concerned whether Down's Syndrome children should be placed in special or ordinary schools, one classroom teacher strongly agreed that Down's Syndrome children should attend special schools while another classroom teacher strongly disagreed with the statement. The remaining classroom teachers, contrast teachers and principals indicated greater uncertainty as regards special versus regular class placement, with their attitudes evenly divided among the middle three categories.

While most classroom teachers disagreed or were undecided about Down's Syndrome children attending school every day (Item 3), the contrast teachers predominantly supported the view that Down's Syndrome children should attend school on a full-time basis.

Half the classroom teachers, contrast teachers and principals were undecided about whether Down's Syndrome children learn skills more rapidly in a segregated setting or in a regular classroom (Item 6).

On Item 8, 73% of the classroom teachers, contrast teachers and principals agreed or strongly agreed with the statement that having a Down's Syndrome child in the classroom benefits the child's classmates. The remaining teachers were undecided about this issue, while only one contrast teacher disagreed with the statement.

Over half(65%) of all teachers and principals were undecided about whether or not Down's Syndrome children should remain in the mainstream or attend a segregated setting, once they have completed the junior school years(Item 9).

The majority of all those who completed the questionnaire agreed that most of the activities teachers do with 'normal' children are appropriate for Down's Syndrome children(Item 12).

There was also considerable variation regarding classroom teachers', contrast teachers' and principals' scores on the Perceptions about Down's Syndrome children's Behaviour section of the questionnaire. Item 2 which referred to Down's Syndrome children taking up more time than the other children in the class was overwhelmingly agreed with by all who filled in the questionnaire. It is interesting to note that the only three teachers who disagreed with the statement were three of the Down's Syndrome children's classroom teachers.

Eighty-five per cent of all teachers who completed the questionnaire agreed or strongly agreed with Item 4, that Down's Syndrome children do not set a bad example for the other children in the class.

Approximately half of all classroom teachers, contrast teachers and

principals strongly agreed that the Down's Syndrome children are socially isolated at lunchtimes (Item 5), while the other half strongly disagreed or disagreed, and three teachers were undecided.

There was a similar pattern for Item 7. Half the principals, classroom teachers and contrast teachers agreed or strongly agreed that Down's Syndrome children are more disruptive in the classroom while the other half did not. Only one contrast teacher was undecided on this issue.

Sixty-four percent of all the teachers who filled in the questionnaire agreed or strongly agreed that Down's Syndrome children are less attentive to what they are supposed to be doing (Item 10), while 23 per cent were undecided and the remaining 13 per cent disagreed. The principals' and classroom teachers' attitudes were evenly distributed, although no-one strongly disagreed with the statement.

Item 11 produced more disagreements than agreements, with 12 of the 21 teachers who filled in the questionnaire (including three principals and three of the Down's Syndrome children's class teachers) disagreeing with the statement that Down's Syndrome children follow instructions as well as their classmates do. Four teachers (one principal, one class teacher and two contrast teachers) were undecided on the issue, while four teachers (one principal, two class teachers and one contrast teacher) agreed or strongly agreed that Down's Syndrome children follow instructions as well as their classmates do.

Overall, the data obtained on both the general Attitudes towards Integration Items and Perceptions about Down's Syndrome children's Behaviour Items of the Questionnaire indicate considerable ambivalence

among teachers about the values of mainstreaming. It also seems likely that the Down's Syndrome children's classroom teachers' attitudes towards integration in general are strongly related to how they perceive the Down's Syndrome child in their class.

Teacher Attention to Appropriate and Inappropriate Behaviour.

Teacher attention to appropriate behaviour per hour was computed by counting the number of occasions on which the teacher attended to appropriate behaviour on the part of the subject and by multiplying this count by the total number of seconds during which the subject was observed over the number of seconds in an hour. The same procedure was used to calculate hourly rates of teacher attention to inappropriate behaviours, misplaced reprimands, teacher and pupil initiated interactions, and disruptive behaviours engaged in.

As can be seen in Table 3, four out of the five Down's Syndrome children received considerable more attention for engaging in appropriate behaviours than did the Contrast children. Susan received five times as much attention for appropriate behaviour as the Contrast mean for her class, while Kate received four times as much attention. Sarah received 12 times as much attention and Ben received one and one half times as much attention for appropriate behaviour. The main exception was David who received the same low rate of attention for engaging in appropriate behaviours as the Contrast children in his class. Nevertheless, the Down's Syndrome children as a group received three times as much attention for behaving appropriately as the Contrast children.

Table 3

Individual Hourly Rates of Teacher Attention to Appropriate and Inappropriate Behaviours and Rate per Hour of Misplaced Reprimands

Subject	Attention to Appropriate Behaviour	Attention to Inappropriate Behaviour	Misplaced Reprimands
Susan	66	12	0
Contrast Mean	13	6	1
Ben	26	2	0
Contrast Mean	19	1	1
David	6	20	24
Contrast Mean	5	17	2
Kate	35	0	0
Contrast Mean	9	2	0
Sarah	36	4	0
Contrast Mean	3	3	0
Down's Syndrome Children Mean	33.8	7.6	
Standard Deviation	19.37	8.29	
Contrast Children Mean	9.8	5.8	
Standard Deviation	5.74	5.84	

The same kind of pattern was revealed by the running records of classroom interactions, as can be seen from Table 4. During the periods of time covered by the running records, the Down's Syndrome children received more teacher attention (mean = 10.4) for appropriate behaviour than the Contrast children (mean = 1.6).

Table 4

Mean number and Standard Deviation of Instances of Specific and Non-specific Teacher Attention to Appropriate Behaviours during 1½ hours running Records

Subject	Non-specific Attention		Specific Attention		Total Mean
	Mean	Standard Deviation	Mean	Standard Deviation	
Down's Syndrome Children	6.40	2.87	4.0	3.84	10.4
Contrast Children	.6	.489	1.0	1.09	1.6

However, a closer analysis of the actual type of attention given to the Down's Syndrome children indicated that about half of the comments about appropriate behaviour consisted of non-specific praise, such as "good", "that's lovely", "good girl", and so on.

Attention to inappropriate behaviour was generally low for both the Down's Syndrome and Contrast children. The exception to this was again the children in David's class, where the rate of teacher attention to inappropriate behaviour was three times that given to appropriate behaviour.

The use of misplaced reprimands (teacher reprimanding, criticising, commenting on subjects' wrong answers or inappropriate behaviour when the child is actually on-task) was virtually non-existent as can be seen from Table 3. Once more, David's teacher was the one exception. She used

this technique at the rate of 24 comments per hour with David, but much less frequently with the Contrast children in the class.

Teacher's Use of Open and Closed Questions.

The rates at which teachers directed open and closed questions to both the subjects and the peers were computed in the same manner as was attention to appropriate and inappropriate behaviour.

Table 5

Types of Questions Teachers Directed to Down's Syndrome and Contrast Children: Rates per Hour

Subject	Closed Questions	Open Questions	Total
Susan	28	12	40
Contrast Mean	7	3	10
Ben	52	6	28
Contrast Mean	7	5	12
David	12	10	32
Contrast Mean	7	5	12
Kate	33	11	44
Contrast Mean	7	8	15
Sarah	38	10	48
Contrast Mean	5	3	8
Down's Syndrome Children Mean	32.6	9.8	38.4
Standard Deviation	13.04	2.03	7.41
Contrast Children Mean	6.6	4.8	11.4
Standard Deviation	.8	1.83	2.33

From the data presented in Table 5, it is evident that the Down's Syndrome children received from two to eight times as many closed questions as the Contrast children in each class. Even though, overall there were less open-ended questions than closed questions, the same trend, that Down's Syndrome children received more open questions than the Contrast group emerged. This result did not apply to Ben who received a similar amount of open questions to the Contrast children.

Interactions Initiated by Peers to Down's Syndrome and Contrast Children.

Table 6 shows the rates at which peers initiated interactions with each of the Down's Syndrome and Contrast children. There was considerable variability from class to class with respect to number of interactions initiated by the subject's peers. Ben received almost three times as many peer-initiated interactions as the Contrast children while David received approximately the same number of peer-initiated interactions as the Contrast children in his class. Kate and Sarah received approximately half the number of initiations received by the Contrast children in their classes while Susan received no peer initiations at all. Sarah received the highest number of peer initiations at all. It should be noted that the high figure for peer initiations to the Contrast children in Sarah's class is inflated by one particular Contrast child who spent large portions of time talking with peers. If the data from this child is removed, then the number of initiations directed to Sarah is closely similar to the number directed to the other two children.

Table 6

Rate per hour of Interactions Initiated by Peers to Down's Syndrome and Contrast Children in Classroom setting

Subject	Number of Interactions per hour
Susan	0
Contrast Mean	14
Ben	8
Contrast Mean	3
David	12
Contrast Mean	9
Kate	9
Contrast Mean	22
Sarah	14
Contrast Mean	31
Down's Syndrome Children Mean	8.6
Standard Deviation	4.8
Contrast Children Mean	15.8
Standard Deviation	9.82

Time On-Task.

Time on-task was calculated by dividing the number of 10-second intervals coded as on-task over the total number of intervals during which the child was observed converted to a percentage. As can be seen from Table 7, the Down's Syndrome children and the Contrast children spent exactly the same overall percentages of time on-task. David and the Contrast children in his class were engaged in on-task behaviour for higher proportions of time than any of the other subjects (over 90%).

Susan, Ben and Sarah, the Contrast children in their classes and the Contrast children in Kate's class spent approximately 80 per cent of time on-task, while Kate spent the least amount of time on-task(71%).

Table 7

Percentage of Time On-Task and Number of Disruptive Behaviours
(Mean Rate per Hour)

Subject	Percentage of Time On-Task	Number of Disruptive Behaviours (Rate per Hour)
Susan	81	0
Contrast Mean	81	3
Ben	83	1
Contrast Mean	84	1
David	94	4
Contrast Mean	91	3
Kate	71	4
Contrast Mean	80	4
Sarah	84	0
Contrast Mean	77	5
Down's Syndrome Group Mean	82.6	2.4
Standard Deviation	7.33	1.95
Contrast Group Mean	82.6	3.2
Standard Deviation	4.75	1.32

Disruptive Behaviours.

The overall mean for the Contrast group(3.2 disruptive incidents per hour) when compared to that of the Down's Syndrome group(2.4 disruptive incidents per hour) indicates that the Contrast group engaged in a slightly higher rate of disruptive behaviours. Since the rates of

disruptive behaviours for both Down's Syndrome and Contrast children are low, the present data does not support the belief that Down's Syndrome children are more disruptive in the classroom than the child's classmates.

Interactions Initiated by Down's Syndrome Children.

Data concerning the hourly rate of interactions to both peers and teachers initiated by the Down's Syndrome children and the average rate for the three Contrast children in each class can be found in Table 8.

Table 8

Rate per Hour of Subject-Initiated Interactions

Subject	Subject-Initiated Interactions to Peers	Subject-Initiated Interactions to Teachers
Susan	4	32
Contrast Mean	13	10
Ben	18	22
Contrast Mean	7	7
David	2	32
Contrast Mean	17	30
Kate	9	9
Contrast Mean	23	9
Sarah	16	10
Contrast Mean	49	5
Down's Syndrome Group Mean	9.8	21
Standard Deviation	6.33	10.07
Contrast Group Mean	24.8	12.20
Standard Deviation	12.62	9.06

Generally, the Down's Syndrome children initiated fewer interactions to peers than the Contrast children (on average), with the exception of Ben who initiated two-and one-half times as many as the Contrast groups in his two classes. The overall figures for the two groups indicate that the Contrast children initiated interactions two-and-one-half times as frequently (24.8) as the Down's Syndrome children (9.8).

The rate of interactions to teachers showed greater variability and a less consistent pattern than interactions to peers. Susan, Ben and Sarah initiated up to three times as many interactions with their teachers as did the Contrast children in their respective classes, while Kate and David initiated contacts with the teacher at a rate similar to that of their Contrast children. The rate of subject-initiated interactions to teachers was high in David's class (30 to 32 per hour) which presumably reflects the low pupil to teacher ratio in this class. The rate for Kate and her peers was lower (9 per hour) which is consistent with a higher pupil to teacher ratio.

Teacher Instructions.

From Table 9, it can be seen that that the Down's Syndrome children as a group received more frequent instructions than the Contrast group. The same was true for each individual Down's Syndrome child. The Down's Syndrome children also seemed to receive slightly greater numbers of group instructions. The total number of instructions (both group and individual) received by the Down's Syndrome children was approximately three times that received by the Contrast children.

Table 9

Rates per hour of Group Instructions, Individual Instructions and Total Instructions directed to the Down's Syndrome children and Mean Rate per hour for Contrast Group

Subject	Group Instructions	Individual Instructions	Total Instructions
Susan	34	120	154
Contrast Mean	29	11	40
Ben	12	46	58
Contrast Mean	8	11	19
David	44	94	138
Contrast Mean	30	9	39
Kate	28	37	65
Contrast Mean	20	11	31
Sarah	16	36	52
Contrast Mean	10	5	15
Down's Syndrome Group Mean	26.8	66.6	93.4
Standard Deviation	11.70	34.17	43.44
Contrast Group Mean	19.4	9.4	28.8
Standard Deviation	9.2	2.33	10.20

The percentage of these instructions which were complied with is presented in Table 10. For both group and individual instructions, the Down's Syndrome children as a group complied less frequently than the Contrast children. While the Contrast children complied with both types of instructions nearly 100 per cent of the time, the Down's Syndrome children complied on average 88 per cent of the time. Even though the Down's Syndrome children followed instructions less frequently than the Contrast children, the actual percentage followed is still high.

Table 10

Percentage of Group, Individual and Total
Instructions Complied with per hour

Subject	Group Instructions.	Individual Instructions	Total Instructions
Susan	94	85	88
Contrast Mean	88	97	91
Ben	66	91	86
Contrast Mean	100	100	100
David	90	100	94
Contrast Mean	100	100	100
Kate	92	70	80
Contrast Mean	100	100	100
Sarah	100	88	92
Contrast Mean	100	100	100
Down's Syndrome Group Mean	88.4	86.8	88.0
Standard Deviation	11.68	9.78	4.89
Contrast Group Mean	97.6	99.4	98.2
Standard Deviation	4.8	1.2	3.6

There were a number of individual differences. Susan, Kate and Sarah followed group instructions more frequently than instructions directed to them individually, while Ben and David complied with individual instructions more frequently than group instructions.

The total number of group and individual instructions which occurred during academic tasks during the six 15-minute running record observations were tallied for each Down's Syndrome child and one Contrast child in each class. Academic tasks were defined as any of the following: printing,

drawing, writing a story, counting, jigsaw puzzles and mathematics. For each type of instruction (that is, group or individual), the instructions were divided into two further categories: 1) academic content-related instructions which were instructions requiring cognitive competence. Examples of this type of instruction are, "Pick up six rods", "Find the word, 'are'", "Draw five circles". 2) management-related instructions which were instructions related to the management of the task. For example, "Open your books", "Look at the blackboard", "Put the rods away."

Table 11 presents the total number of group instructions related to academic tasks for each child and Contrast group as well as the overall numbers of instructions directed to the Down's Syndrome and Contrast groups as a whole. As was the case during the structured observation sessions, the running record data further indicated that while the Down's Syndrome children were usually compliant, they did not always follow the instruction correctly. For example, in one instance the teacher said, "Pick up five rods," and the Down's Syndrome child was compliant and counted out some rods. However, she picked up only four instead of the five requested. The running record data indicated that such episodes occurred frequently. The Down's Syndrome children complied with 84 per cent of all academic instructions directed to the group as a whole, but followed only one third of such instructions correctly (33%). The Contrast group only failed to correctly undertake 8 per cent out of the 92 per cent of instructions they complied with.

Table 11

Number of Group Instructions related to Academic Tasks During 1½ hours
of Running Records

Subject	Total Number of Academic- Content related Instructions	Number Child Complied with	Number Child did not comply with	Number correctly followed	Number incorrectly followed
Susan	7	6	1	2	4
Contrast child	8	7	1	7	0
Ben	0	0	0	0	0
Contrast child	2	2	0	2	0
David	13	13	0	7	6
Contrast child	2	2	0	2	0
Kate	6	5	1	0	5
Contrast child	1	1	0	1	0
Sarah	6	3	3	0	3
Contrast child	2	2	0	1	1
Total Down's Syndrome Group	32	27 (84%)	5	9 (33%)	18 (67%)
Total Contrast Group	15	14 (93%)	1	13 (92%)	1 (8%)

However, Table 12, which depicts the number of management-related instructions during academic tasks portrays a different picture. Although the Down's Syndrome children followed fewer instructions than the Contrast group (72% compared to 91%), the data indicates that when they did follow the instruction, the percentage of management-related instructions followed correctly was as high as the Contrast Group. Both groups correctly followed 94% of group instructions related to the management of the task.

Table 12

Number of Group Instructions during Academic Tasks related to Management of the Task during 1½ hours of Running Records

Subject	Total Number of Management-related Instructions	Number Child Complied with	Number Child did not comply with	Number Child correctly followed	Number Child incorrectly followed
Susan	8	4	4	3	1
Contrast child	19	19	1	18	1
Ben	0	0	0	0	0
Contrast child	1	1	1	0	0
David	10	10	0	10	0
Contrast child	3	1	2	1	0
Kate	3	2	1	2	0
Contrast child	0	0	0	0	0
Sarah	1	0	1	0	0
Contrast child	12	11	1	11	0
Total Down's Syndrome Group	22	16 (72%)	6	15 (94%)	1
Total Contrast Group	35	32 (91%)	5	30 (94%)	1

Table 13 presents the numbers if individual instructions relating to academic tasks given by teachers to each Down's Syndrome child and the Contrast children during the running record observation sessions. The individual instructions directed to the Down's Syndrome children were complied with 100 per cent of the time and two thirds of these were followed correctly. The data suggest that when teachers directed their instructions to individual children, the child was better able to follow the instruction, possibly because the teachers were better able to match up the instruction with the child's level of cognitive functioning.

Table 13

Number of Individual Instructions related to Academic Tasks During
1½ hours of Running Records

Subject	Total Number of Individual Instructions related to Academic tasks	Number Child Complied with	Number child did not Comply with	Number correctly followed	Number incorrectly followed
Susan	10	10	0	8	2
Contrast child	1	1	0	1	0
Ben	3	3	0	2	1
Contrast child	2	1	1	0	1
David	17	17	2	15	2
Contrast child	1	1	0	1	0
Kate	2	2	0	0	2
Contrast child	1	1	0	1	0
Sarah	6	6	0	1	5
Contrast child	2	2	0	2	0
Total Down's Syndrome Group	38	38 (100%)	0	26 (68%)	12 (32%)
Total Contrast Group	7	6 (86%)	1	5 (83%)	1

As was the case during the structured observations, the running record observations indicated that the Down's Syndrome children received a consistently ^{higher} number of individual instructions than any of the Contrast children. This was true for both academic instructions and management instructions.

Table 14 which summarizes the numbers of individually addressed management-related instructions during academic tasks, reveals a similar

trend to that found in Table 12 for group instructions. It is evident that when the Down's Syndrome children complied with the individual management-related instructions, they correctly carried out the instructions most of the time (88% of the time).

Table 14

Number of Individual Instructions During Academic Tasks Related to Management of the Task During 1½ hours of Running Records

Subject	Total Number of Individual Management-related Instructions	Number Child Complied with	Number Child did not Comply with	Number correctly followed	Number incorrectly followed
Susan	9	5	4	4	1
Contrast child	1	1	0	1	0
Ben	5	3	2	2	1
Contrast child	0	0	0	0	0
David	12	12	0	11	1
Contrast child	4	4	0	4	0
Kate	4	3	1	3	0
Contrast child	0	0	0	0	0
Sarah	3	2	1	2	0
Contrast child	2	2	0	2	0
Total Down's Syndrome Group	33	25 (76%)	8	22 (88%)	3
Total Contrast Group	7	7 (100%)	0	7 (100%)	0

To summarize, the running records revealed high levels of correctness when the Down's Syndrome children carried out both group and individual instructions related to the management side of academic tasks. However,

while the Down's Syndrome children complied frequently with group and individual instructions related to the academic content of tasks, they often failed to follow the instruction correctly. This occurred especially in relation to group academic instructions where only one third were followed correctly, whereas they managed to follow two thirds of the individual academic instructions correctly.

Social Participation in the Playground.

The percentage of time spent in each of the seven categories of social participation was computed by totalling the number of intervals the child engaged in each of the play categories for the entire six observations, then by dividing this number by the number of intervals the child was actually observed.

Table 15 presents the percentage of time the Down's Syndrome children and Contrast children spent in each of the categories of play. Also included is the overall mean and standard deviation for the Down's Syndrome and Contrast children for each of the seven play categories.

Unoccupied behaviour was virtually non-existent for both groups of children with the exception of Sarah who spent 9 per cent of her time engaged in this type of behaviour. Both the Down's Syndrome and Contrast children spent low amounts of time engaging in onlooker behaviour. Ben spent the smallest proportion of time in this category by spending only 3 per cent of his time in onlooker behaviour, compared with 15 per cent for the Contrast children in his class.

Table 15

Percentage of Time Spent in Each Social Participation Category

Subject	Unoccupied	Onlooker	Solitary	Parallel	Associative	Inappropriate Associative	Co-operative
Susan	1	7	26	10	48	9	0
Contrast children	2	10	19	20	46	0	2
Ben	0	3	13	11	66	7	0
Contrast children	1	15	24	20	39	2	0
David	3	14	10	5	56	1	11
Contrast children	1	16	25	5	51	1	1
Kate	1	10	34	34	19	2	0
Contrast children	2	6	17	28	47	0	1
Sarah	9	13	39	8	31	0	1
Contrast children	1	9	17	11	49	0	12
Down's Syndrome Mean	2.8	9.4	24.4	13.6	44	3.8	2.4
Standard Deviation	3.24	4.02	11.35	10.40	16.95	3.54	4.31
Contrast Mean	1.4	11.2	20.4	16.8	46.4	.6	3.2
Standard Deviation	.48	3.76	3.44	7.98	4.07	.8	4.44

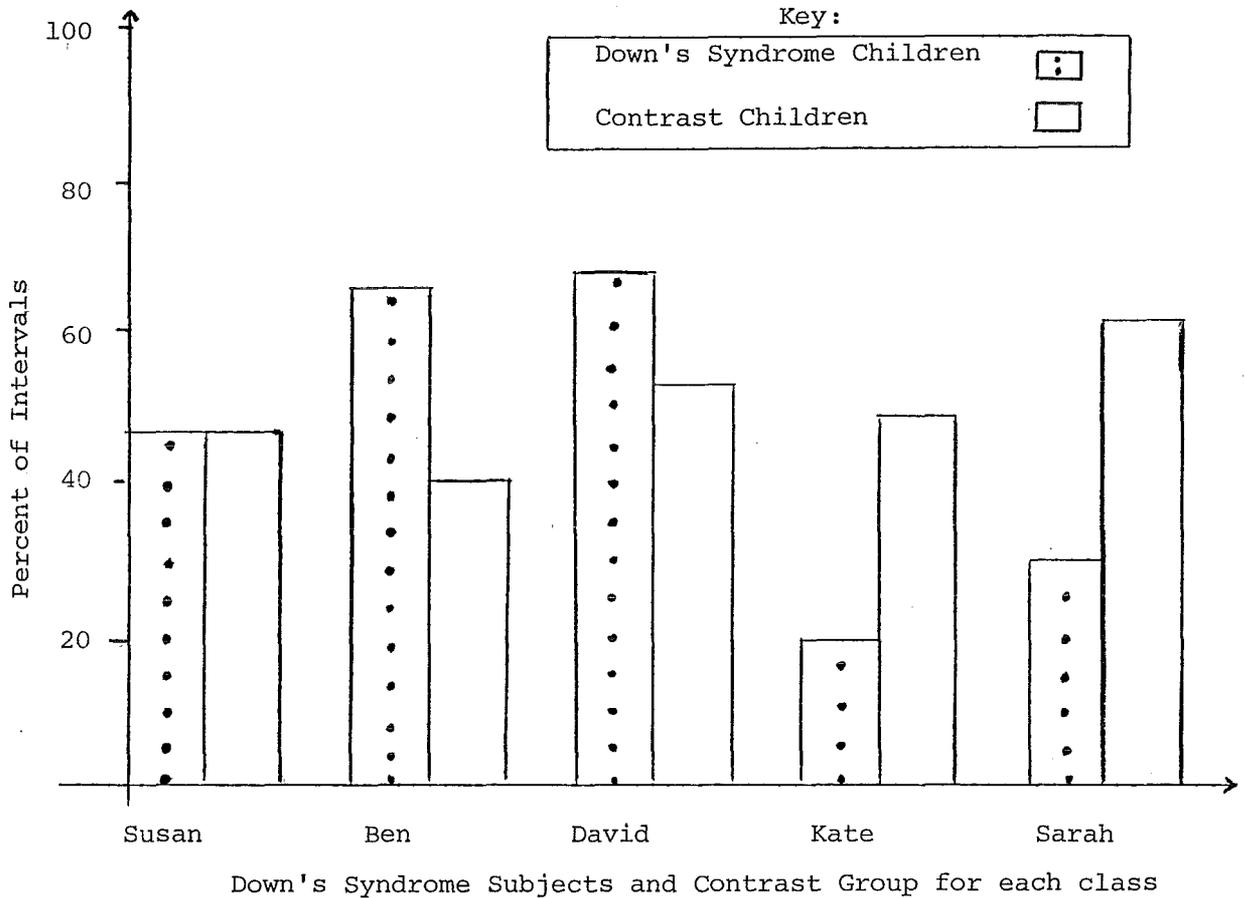
There were a number of individual variations as regards time spent in solitary play. Susan engaged in slightly more solitary play (26% of the time) than the Contrast children for her class (19%), while Ben and David engaged in only half as much solitary play (13% and 10% respectively) as the Contrast children in their respective classes. The reverse was true for Kate and Sarah who engaged in twice as much solitary play (34% and 39% respectively) as the Contrast groups for their particular classes (17%).

Overall, there was less parallel play than solitary play. The Contrast peers in Susan's and Ben's class spent twice as much time in parallel play as did Susan and Ben (20% compared to 10-11%). David, Sarah and their respective Contrast children spent a similar low percentage (5-11%) of time engaged in parallel play, while Kate and the Contrast group for her class engaged in a similar high percentage of time in parallel play (around 29%).

Figure 1 shows the percentage of time the Down's Syndrome and Contrast children spent engaged in social play (that is, associative and co-operative play). Susan spent exactly the same amount of time in social play as the Contrast group for her class (48%), while both Ben and David exceeded the levels of social play engaged in by the Contrast children. Ben spent 66 per cent of his time engaged in associative play compared to the much lower level of 39 percent of time spent by his Contrast children. David also exceeded the Contrast group as regards time spent in social play. He engaged in associative play 56 per cent of the time and in co-operative play, 11 per cent of the time, which resulted in 67% of his time being spent in social play. Again, this figure surpassed the Contrast group's time spent in social play (51%).

Figure 1

Percentage of Time Engaged in Social Play (Associative and Co-operative Play)



Kate engaged in lower levels of social play (19%). This was well below that of the Contrast children in her class (47 per cent). Sarah also engaged in a low level of social play (31%) compared to the Contrast group (49%).

Co-operative play was engaged in relatively infrequently by both groups of children. David was the only Down's Syndrome child who engaged in co-operative play for any significant period (11%) and two Contrast children

in Sarah's class engaged in this type of play approximately the same length of time as David(12%).

The percentage of time spent in inappropriate associative play was virtually non-existent for all the children, except Susan and Ben who respectively engaged in this type of play for 9 and 7 per cent of the time.

It must be noted that the Contrast children observed in the playground were the same three Contrast children observed in the classroom. They were observed on a rotational basis on two occasions throughout the study.

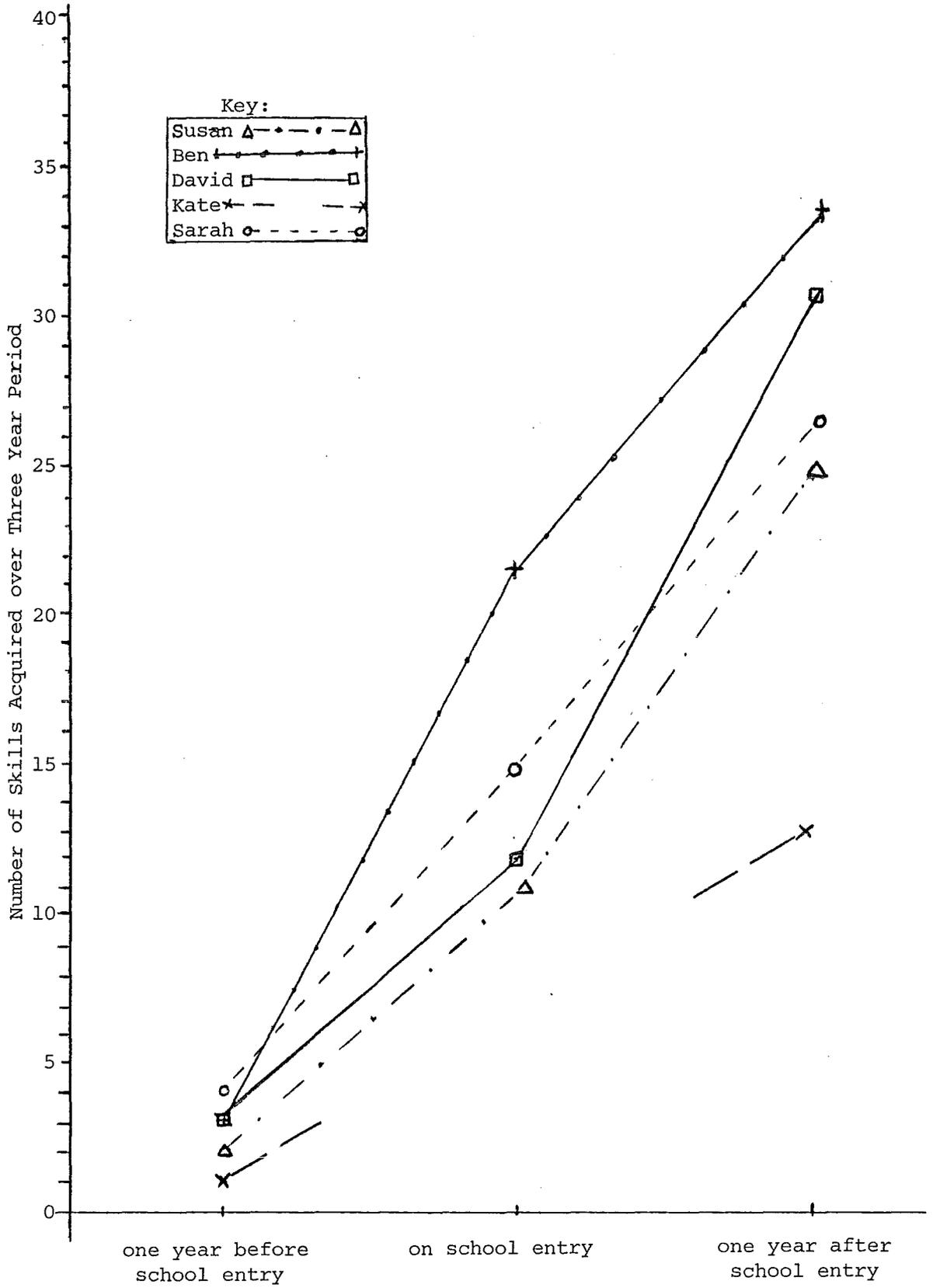
Although, Ben spent a high portion of his time in social play, it is interesting to note that he spent less time in social play when he played with the children from the special class, than when he moved over to the infant playground and played with the children from the integrated class. During Observations one, two and three, Ben followed the researcher from the special class to the integrated class playground at the beginning of the observations. He stayed the entire time during Observation one and approximately half the time, during Observations two and three, then returned to the special class area where he subsequently spent more time in non-social play. During Observations four and five, he stayed with the integrated class for the day and on the last observation he remained with the special class children where the percentage of time engaged in social play was lower than for any other observation.

Developmental Progress.

The number of skills acquired by each subject from the list of 40 Items selected from the D.S.P.I. over a three year period is presented in Figure 2. The number of skills each child acquired one year before school

Figure 2

Cumulative Graph showing Number of Skills Acquired One Year before School, on School Entry, and approximately One Year after School Attendance for Down's Syndrome Children



entry and after school entry were compared to ascertain each child's rate of progress. Generally speaking, it can be seen that the four subjects who participated in the Early Intervention Programme up until school entry maintained or surpassed their rate of progress after one year's school attendance.

Susan, who had acquired 11 of the 40 skills when she entered school had acquired a further 13 skills a year later, which would indicate that she maintained the same rate of progress.

Ben's progress differs. While he was by far the most competent child in terms of the number of skills he had acquired when entering school (22 skills), he did not acquire a similar number during the course of his first year at school. Progress was still evident, but at a slower rate. He acquired a further 12 skills during his first year of school.

It is evident that David's progress a year after school entry is superior to that achieved during the Early Intervention Programme. David had acquired 12 skills when he started school and acquired a further 19 skills during his first year at school.

The data for Kate is inconclusive since her progress was not monitored on school entry, due to her having left the Early Intervention Programme. She also had attended school for less time than the other subjects and furthermore, no permission was given to assess Kate's skills directly. Therefore, if the skills were not observed directly in the classroom, the researcher had to rely on teacher reports for those skills and this may not have been accurate.

Sarah's progress during her first year of school was at a similar rate to that achieved during her participation in the Early Intervention Programme. Sarah acquired 11 of the skills prior to school entry and 12 skills over her first year of school, indicating a similar rate of progress.

DISCUSSION

The data collected during the present study revealed a number of discrepancies between teacher's beliefs about Down's Syndrome children and the performance of these children in the classroom. Four out of six of the classroom teachers agreed with the statement, "compared with non-retarded peers, Down's Syndrome children are less attentive to what they are supposed to be doing". However, the percentage of time which the Down's Syndrome children spent on-task was identical to that spent by the Contrast children. Similar discrepancies occurred with respect to responses to the item, "Down's Syndrome children are more disruptive in the classroom as their same-age peers". Both Susan's and Sarah's second teacher agreed with the statement, yet neither child displayed any disruptive behaviour at all, whereas the Contrast children did. It is interesting to note that Sarah's first teacher strongly disagreed with the statement, while the second teacher agreed with it. This indicates that teachers' perceptions of the same child may vary considerably. The teacher in Ben's integrated class strongly agreed with the above statement, yet there was no evidence of disruptive behaviours in either the running records or interval recording observations made in the integrated class. All of Ben's disruptions were in the special class. It is worth noting that Ben's special and integrated class teachers, as well as the other three teachers in the school agreed with the statement, "During play and lunchtime, the Down's Syndrome child tends to be socially isolated from his/her class-

mates". This belief is markedly at variance with the data which shows that, far from being socially isolated, Ben spent two thirds of his time in social play. These discrepancies between teachers' perceptions of the Down's Syndrome child's behaviour and the child's actual behaviour would suggest that teachers have difficulty in isolating the child's behaviour from that of the handicapping condition - an observation which has been made by Notkin-White, (1980). It would appear that because the subjects have the obvious physical characteristics of Down's Syndrome, that many of the teachers expect them to behave in certain ways. Alternatively, it may be that the teachers' definitions of what constitutes disruptive or inattentive behaviour or what they expect from the children when they give an instruction differs from the definitions used in the present research. For example, while most teachers perceived the Down's Syndrome children engaging in more disruptive behaviours and the results did not support these perceptions, it is possible that this discrepancy arose due to differences in definitions. Some teachers verbally reported that they labelled "disruptive", a number of behaviours, including being slow at following instructions which necessitated the teacher to repeat the instruction, wandering about the room while the others were engaged in a group activity and following instructions incorrectly as "disruptive", while these were not defined as "disruptive" for the purposes of this study.

The finding that the Down's Syndrome children as a group received approximately three times the rate of positive attention for engaging in appropriate behaviour, three times the number of questions and seven times the number of individual instructions could be due to a number of factors. For example, these above average rates may have been due to the researcher's presence, since the teachers were well aware that the Down's Syndrome child was the prime focus of the study, whereas they tended to forget who the

Contrast children were. The proximity factor may also have played an important role. A high percentage of observations took place during large or small group activities. During these activities, the Down's Syndrome children were usually required to sit at the front of the group. The above average rates of interaction for the Down's Syndrome children may have been due to the fact that teachers typically interact more often with the children nearest to them. Brooks, Silven and Wooten(1978), in their study of high school classrooms, for example found that the further pupils were away from the teacher, the more likely they were to be passive listeners, whereas the closer they sat to the teacher, the more likely they were to be involved in interaction with the teacher. Thirdly, the high interaction rate may have been a function of the teachers' management strategy for dealing with the Down's Syndrome child's behaviour. The use of frequent questions, instructions and attention to appropriate behaviour may have developed as a strategy for maintaining attention to task, on the part of the Down's Syndrome children.

It must be noted, however that while the Down's Syndrome children received higher rates of positive teacher-initiated interactions than the Contrast children, no data was collected on children who were perceived as "average" or "very competent". It may well be that perceived high achievers received even higher rates of interaction than the Down's Syndrome children. Therefore, despite the higher rates of interaction with the Down's Syndrome children in comparison to the fifteen children in the study, it cannot be concluded that Down's Syndrome children take up more teacher time than other children in the class.

An analysis of the content of teacher attention to appropriate behaviour revealed that half of this type of attention took the form of non-specific praise, such as "good", "good boy", "that's lovely". This non-

specific praise is generally considered to be less effective in promoting learning outcomes than feedback which refers to the student's actual responses (Hogan, Cooper, LeBlanc and Etzel, 1971).

The data on the types of questions used are consistent with previous research which has found that teachers make more frequent use of closed questions than open questions (McGinley, 1982). Since there is evidence to indicate that open questions are more conducive to the child's cognitive and language skills (Tough, 1973), feedback to teachers regarding this aspect of classroom performance might be of benefit. This is of critical importance for Down's Syndrome children who tend to have more limited expressive language abilities.

The data in Table 9 suggest that Down's Syndrome children received many more instructions than the Contrast children. This raises a number of issues. It is likely that some of these instructions were used as a strategy to keep the children on-task when they were on-task and to direct them back to the task when off-task. However, the latter was not always the result. The interval recording data revealed that a large number of these instructions were given while the child was off-task, which may in fact reward the child for engaging in off-task behaviour since he/she is given attention when engaged in such behaviour. The following example from the running record data illustrates this:

Teacher: "Come on Susan, get cracking. You've got a new book there, so get cracking."

Susan copies the next letter in her printing book, then stares into space.

Teacher leaves her desk and comes to Susan's desk. Says to Susan, "Come on Susan. You've got some work to do. Do your best printing." Teacher goes back to her desk to hear a boy's reading.

Susan watches the teacher.

Teacher calls out to Susan, "Come on Susan".

Susan copies the next letter, then looks around the room.

Teacher: "Susan, wakey wakey".

Susan copies the next letter, then stares into space.

The example illustrates two main points. First, it would appear that the Down's Syndrome child is rewarded by attention for engaging in off-task behaviour. This type of situation is also described by Madsen, Becker, Thomas, Koser and Plager (1968) who found that the more frequently the children were given the instruction, "sit down", the higher was their rate of standing up. However, when attention was paid to them when they were actually seated, the rate of instructions decreased markedly and the amount of time they spent seated increased substantially. Secondly, the example also suggests that the children are compliant, but that they are slower and often do not keep going, as evidenced by Susan actually following the instruction (copying the next letter), then staring into space. As a result, the Down's Syndrome child is less likely to complete the required task. A more appropriate strategy might have been to praise on-task behaviour and avoid attention to off-task behaviour by eliminating the high numbers of instructions while the child is off-task. It is likely that more specific instructions would also aid the child in engaging in on-task behaviour. For example, instead of saying, "Come on Susan. You've got some work to do. Do your best printing", the teacher could say, while demonstrating what was required, "Print a line of 'A's' from here to here".

A further difference that emerged in relation to following instructions was that while the Down's Syndrome children followed 10 to 20 per cent fewer management instructions, the management instructions that were

complied with were almost always accurately complied with. On the other hand, while they frequently complied with academic instructions, one half of these were not followed correctly. Immediately after teachers direct academic instructions to the class, it would seem that the Down's Syndrome children could benefit from an individual academic instruction matched to their level of cognitive development. In this way, opportunities for learning from the task and for succeeding at the task would be maximised.

The data indicate that the Down's Syndrome children spent the same amount of time on-task as their non-retarded peers. This finding is consistent with previous research studies (Bray and Wilton, 1975; Forness, Guthrie and MacMillan, 1981). This observation has a number of implications. For example, since on-task behaviour is positively correlated with achievement (McKinney, Mason, Perkerson and Clifford, 1975; Rosenshine and Berliner, 1978), and the Down's Syndrome children engage in on-task behaviours most of the time, then alternative explanations must be found for the children's slow learning rate. Although aged 6 and 7, the Down's Syndrome children with the exception of Sarah are still in the new-entrant rooms with 5 and 6 year olds. This is a question which requires further research. It may well be that it is the content of the curriculum that is the crucial factor, not the actual percentage of time engaged on the task. Perhaps we should be asking whether the children are actually learning anything from the task as opposed to merely engaging in it to comply with the teacher's instructions. Bray and Wilton's (1975) research suggested that nine years ago this area required urgent investigation, but as yet no advances seem to have been made.

There also seemed to be qualitative differences in on-task behaviour which need to be more thoroughly investigated. For example, the Down's

Syndrome children frequently failed to finish tasks, despite high rates of on-task behaviour, whereas the Contrast children were frequently off-task for most of the time allowed for an activity, but they nevertheless managed to complete it. It thus seems that the actual amount of time spent on-task is not a useful way of looking at children's learning.

It will be recalled from Table 6, that there was a lower rate of peer-initiated interactions to two of the Down's Syndrome children (Susan and Kate). This did not apply to playground interactions. For example, Susan spent large portions of time interacting with peers (both initiating and receiving interactions) in the playground, whereas in the classroom, she received no interactions from peers at all. Sarah received fewer interactions than her Contrast children, but this was because one of the Contrast children was an extremely verbal child, constantly initiating and receiving interactions. With her data excluded, the number of peer-initiated interactions to Sarah is similar to that of the other Contrast children. Kate had virtually no intelligible expressive speech, so anyone who tried to interact with her would not have been reinforced for the attempt. Most of the peer-initiated interactions with Ben took place in the special class, possibly because such interaction was strongly disapproved of in the integrated class. However, the running record data indicate that while Ben received more interactions than the Contrast child, a number of those interactions were not necessarily beneficial to his development. Since the children in the special class ranged from 8 to 12 years, they tended to treat Ben as a "little boy" who needed someone to look after him, as the following examples illustrate.

The teacher said to the class, "Go and get your brown cards and bring them to the mat".

The children all went to their desks. An older boy quickly got his own card, then went through Ben's desk as Ben watched passively. The peer found it and said to Ben, "I've got yours" and brought it to the mat for him.

In another example, the teacher asked the children to line up outside for physical education. All the children lined up individually except Ben. An older child held him by the hand.

While Ben did receive other interactions, such as those related to the task itself, he received a higher number of "helping" interactions which seemed to prevent him taking responsibility for himself. While a non-retarded child is more likely to resist this "helping" behaviour and develop independent behaviours, a Down's Syndrome child such as Ben is less likely to do so. These type of "helping" behaviours were not evident in any of the regular classes.

David received approximately the same number of peer-initiated interactions as the Contrast children. This may be in part a reflection of his high level of competence and in part due to the fact that there were only nine children in the class.

The data in Table 8 indicated that the Down's Syndrome children initiated more interactions with their teachers than with their peers while the reverse was true for the Contrast children. Research by Marturano(1980) found that during the child's first year of school, there was a general tendency for 4 to 6 year old children to interact increasingly with peers and less with the teachers. It is clear that the Contrast children of the present study had made this transition and were directing most of their interactions towards peers, whereas the Down's Syndrome children, possibly as a result of their overall delayed development, had not yet accomplished this.

On the other hand, the teachers may well have been reinforcing the Down's Syndrome children for initiating interactions with them as opposed

to peers. Because they received such a high number of interactions from teachers as opposed to peers, the Down's Syndrome children may have found it more rewarding to interact with teachers than with peers. In many situations, initiating conversation with peers is incompatible with on-task behaviour and since the Down's Syndrome children generally received such a high rate of instructions, attention for appropriate behaviour and questions, this did not leave the child with many opportunities for initiating interactions with peers.

It must be noted that Ben directed interactions equally to peers and teachers. It was probably unrewarding for Ben to direct all his interactions to his special class peers, as they did not initiate many interactions generally, as can be seen by the low rate of interactions initiated by the Contrast group. Infact, the rate is even lower than that depicted in Table 8, since the integrated class data have been included and this accounts for six out of those seven interactions. It is interesting that the seven subject-initiated interactions to teachers all came from the special class Contrast group. It seems that the special class children also have difficulty making the transition from interacting more with the teacher to spending more time initiating interactions with peers.

There seemed to be a positive relationship between the amount of time spent in social play(Figure 1) and the number of skills acquired(Figure 2). The children with the highest number of developmental skills(Ben and David) spent the most time engaged in social play. Infact, the time they spent in social play was higher than for the Contrast group. On the other hand, Kate who had acquired the least number of skills, also spent the least amount of time in social play. Sarah's low rate of social play could partially be attributed to her preoccupation with shyness which her parents,

teachers and herself use as an explanation for her general lack of social play. This has tended to become a self-fulfilling prophecy, as the following example illustrates. During the researcher's fourth visit, Sarah engaged in unoccupied behaviour for a large portion of the time. One of the peers noticed this and said to her, "Sarah, go and play with John?" to which Sarah replied, "I'm too shy". From time to time, however, Sarah tended to forget that she was "too shy" as happened during the second and third visit, when she engaged in social play, 48 per cent and 74 per cent of the time. This suggests that Sarah makes the choice not to engage social play as opposed to having insufficient skills to engage in it. This is different to Kate where there is no evidence to indicate she is capable of engaging in social play for any significant length of time.

The low levels of unoccupied and onlooker behaviour reported in Table 15 are at variance with the commonly held myth that Down's Syndrome children are passive and unable to operate on their environment and benefit from it (Brinkworth, 1973).

The category, "inappropriate social play" was added to the Parten Social Participation Scale because previous research studies (for example, Gresham, 1982; Evans, 1983) had suggested that handicapped children interact less often and more negatively with peers. The results of the present study provided no support for such a conclusion. Only Susan and Ben engaged in this type of play and then for only 9 per cent and 7 per cent of the time respectively. Both of these children have been involved in recent marriage break-ups involving physical and verbal abuse. Susan resides in a caring home with foster-parents, but visits her father and two male siblings at weekends. The siblings display high levels of inappropriate behaviour which Susan tends to imitate. Ben resides with

his mother and siblings, but physical and verbal abuse are evident when the father visits. Given such backgrounds, the inappropriate behaviour exhibited by Susan and Ben could reasonably be expected.

The overall rate of development of the five Down's Syndrome children has been pictured in Figure 2. Both Susan and Sarah maintained the same rates of progress as they did while they participated in the Early Intervention Programme. The running record data and lack of progress on a number of skills on the D.S.P.I suggested that Sarah should have made even more progress in some areas. Sarah demonstrated no reading skills at all, except sight reading her name, a skill she had acquired while participating in the Early Intervention Programme. She had acquired no further sight words or knowledge of the alphabet. It was evident that she had acquired a number of pre-requisite skills as well as considerable interest in reading. On a number of occasions she picked up a book and made up a story, appropriate to the picture, pointing to the words from left to right. For example, in relation to a picture of a boy chasing a tiger, Sarah told the following story,

"Here is a boy after the tiger. What are you doing here? said the tiger (in a deep voice). I like going here, said the boy"(in a small voice).

It is surprising that a child with such a level of imagination, verbal competence and interest should not have started on a reading programme yet. During class reading instruction, Sarah was either sent to the infant room to participate in a developmental period or was required to listen to tapes. During the ~~one~~-to-one instruction with the teacher aide, she worked on items from the Portage Developmental Checklist (Bluma, Shearer, Frohman and Hilliard, 1976). These observations highlight the need for a review of the curriculum in terms of its appropriateness for this child.

It is likely that Ben's progress has been hindered by lack of an appropriate educational programme. Again, there was no evidence of any progress on reading skills whereas he had left the Early Intervention Programme with a sight vocabulary of six words. He had also made no further progress as regards colour recognition or printing numbers, even although these skills were being developed while he was in the Early Intervention Programme.

However, there are alternative explanations for Ben's lack of progress. Ben spent most of his time in the special class and it may well be that factors, such as reduced expectations, lower level of stimulation, the effects of labelling, as outlined by Dunn(1968) were operating in this environment. It is interesting to note that during the four visits to Ben's special class, the only cognitive activity observed was printing, whereas this was not the case for any of the regular classes where cognitive activities such as mathematics, reading, story writing, drawing and doing jigsaw puzzles were an integral part of the curriculum. However, it may well be that the cognitive activities were scheduled at another part of the day when the researcher was not present.

The peers in the special class were older and did not engage in verbal activity at the same rate as the infant class peers. This appeared to make for a less stimulating environment. Ben's regular class teacher viewed him extremely negatively. He received no positive comments or open questions during the interval recording or running record observations during the two visits he was observed in the regular class. Such negative attitudes are likely to interfere with successful mainstreaming(Harvey and Green, 1984).

Furthermore, Ben's home situation has not been without stress and disruption. The parents separated earlier in the year and Ben's mother was having difficulty coping with the children alone. His mother who was a regular attender of the Early Intervention Programme and consistently carried out all the suggestions made by the Early Intervention staff, as evidenced by Ben's competence on the D.S.P.I, was no longer able to meet Ben's educational needs in the same way, once the marriage ended. However, despite the adverse circumstances, he has actually done quite well.

Of the five children, David appeared to have made the greatest progress during his first year at school. This is probably a function of a stimulating environment both at school and at home. David's teacher has positive perceptions of him and positive attitudes towards integration. The teacher expected the same standard from David as she did from the other children in her class. She tended to use individual instructions at a high rate (Table 9). She also used many misplaced reprimands. David was in a small class of only nine children which enabled her to interact with him regularly. It is interesting to note the teacher's low rate of attention to appropriate behaviour and her high rate of attention to inappropriate behaviour, but this pattern of attention was common to all the children in the class. It does not appear to have affected David's rate of progress.

It is also likely that the content of the curriculum was appropriately adapted to his needs. The teacher aide reported working towards skills he would need to be promoted to Standard one next year. Observations during regular integration indicated that David was partaking in all aspects of the curriculum, even if this meant adaptation of the curriculum to meet his individual needs. For example, at reading time, David worked on sight words, as opposed to listening to tapes or engaging in another task.

David spent the highest percentage of time on-task out of all the subjects and Contrast children, which is another factor likely to have contributed to his progress.

In addition, there was high involvement from the home in David's education. The family lived opposite the school and there was frequent contact between home and school, with the parents following up academic skills such as printing, reading, mathematics and story writing on a regular basis. David's mother who was a teacher continued to be very involved in David's education after leaving the Early Intervention Programme. This continued involvement is likely to have contributed to David's success.

Kate proved to be the least advanced out of all the children. She had acquired little intelligible expressive speech. There were also deficits in her understanding (receptive language) which is an important pre-requisite for expressive speech. An example of clear lack of understanding was evident when the teacher held up a picture of a lady sweeping the floor. The teacher asked Kate whether mother was dressing up/ washing/ cooking. Kate replied, "yes", to each suggested answer. However, it must be acknowledged that Kate's skills could not be assessed directly and so skills which were not apparent in the classroom had to be assessed using the teacher's verbal reports which may not have been completely accurate. Kate also had spent less time at school than the other subjects and she spent the least amount of time on-task. However, in view of the fact that the intensive Doman programme Kate had taken part in for the last two-and-one half years included complex academic skills, then Kate's progress is disappointing.

The data raises a number of implications for the future placement of Down's Syndrome children in schools and for improving the quality of education of the children currently integrated.

It seems essential to thoroughly investigate teacher's attitudes before any future placement is made, so that Down's Syndrome children are not placed with teachers who have extreme negative attitudes towards them and the integration process. For those teachers whose attitudes are in between the two extremes, it would seem beneficial for them to receive some type of training involving practical work with the Down's Syndrome child as well as academic background, covering areas such as the planning of remediation programmes, behavioural management and so forth. The success of the research programmes by Harasymiw and Horne (1975) and Shotel, Jano and McGettigan (1972) who instigated such a training for teachers with negative and neutral attitudes would support the instigation of such a training programme. The provision of such a training programme as a component of the Early Intervention Programme may help ease the transition to school, and ensure that the children are integrated only with teachers who feel positive about them.

It is imperative that in future any major placement decisions, such as the removal of a child to a special class are made on the basis of observational data, not on teacher's perceptions alone, as was done with Ben in his study. Since his integrated class teacher's perceptions of him were unrelated to the actual data, it is vital that this type of situation is avoided. It is evident from Figure 2, that this child possessed more skills than any of the other subjects, despite his not maintaining the same rate of progress at school as in the Early Intervention Programme. It is thus interesting to note that the child with

the most skills has ended up spending most of his time in a special class for older children. The actual presentation of the data concerning teacher perceptions, indicating the discrepancies between their perceptions of the child's behaviour and the actual behaviour may be the first step in overcoming the myths commonly held about Down's Syndrome children. Also, further observations on a regular basis, which provide the teacher with immediate feedback concerning the child's behaviour may help the teachers be more aware of the child's actual performance as opposed to perceived performance.

It would appear that teachers could benefit from appropriate feedback concerning the use of descriptive praise as opposed to non-specific general praise, so as to increase the child's opportunities for acquiring new behaviours. If teachers are going to use such high rates of attention to the Down's Syndrome children's appropriate behaviours, as indicated in Table 3, then they might as well use the type of praise which is more conducive to the learning of new skills. The data also suggests that teachers need to review the amount of positive attention they direct to the children they perceive as "least competent". Since most of these children received very low rates of teacher interaction, it seems likely that participation in classroom activities would not necessarily be a positive learning experience for them.

Feedback could also be provided to the teachers concerning their use of open and closed questions. Since there is evidence to indicate that open questions are more likely to extend the child's cognitive and language skills (Tough, 1973; McGinley, 1982) feedback to teachers concerning this aspect with a view to increasing the rate of open questions might prove beneficial.

Teachers may need to help the Down's Syndrome child direct interactions to peers in the classroom as opposed to the teacher with a view to decreasing dependency on adults. There was some evidence of this occurring. For example, when Sarah asked the teacher to do her shoe up, the teacher told her to ask a peer, which she did. It may be that once the Down's Syndrome children engage successfully in more peer interactions, that they find these interactions as rewarding as adult interaction. The teachers could also structure such interactions by promoting co-operative groupwork. Johnson and Johnson(1981) found that placing 2-3 children in a group involving a co-operative task where each child had an individual sub-task to perform, resulted in increased friendships among handicapped and non-handicapped peers. Peer tutoring has also been effective in promoting interaction between handicapped and non-handicapped children (Leyser and Gottlieb,1981;Cooke,Heward,Test,1982).

Such techniques could be incorporated by teachers in the present study. Further strategies for improving the social interactions of handicapped children in regular classes are listed by Westwood(1982). The low level of peer interaction in the special class, the tendency for the special class children to fuss over Ben, which seemed to prevent him from taking responsibility for himself and the possible reduced level of stimulation (Ben was not observed during any academic tasks besides printing) point to the desirability of his removal to another integrated class. It is clear that Ben has sufficient skills to benefit from attendance in an integrated class. However, it is important to investigate the teacher's attitudes towards mainstreaming and his/her beliefs about Down's Syndrome children.

It would seem from the data that the Down's Syndrome children do take up more time than the other least competent children in the class. It

seems that teachers could benefit from training in appropriate management strategies, so that there would be less need for the high quantity of interactions. For example, training teachers to reward on-task behaviour and task completion in the classroom situation would eliminate the need to continually instruct the child to remain on-task. The teacher aide could assist in this process by not continually working in a one-to-one situation with the child, but using a technique similar to that used by Glazzard(1981). She taught students new skills initially in a one-to-one situation, gradually phasing in more children and eventually expecting the child to work alone within the classroom situation. She states that caution must be exercised when working on a one-to-one basis to avoid fostering dependency, in the sense that children are only able to work or complete a task with the teacher standing nearby. It seems that most of the Down's Syndrome children in this study could profit from such training, particularly in relation to task completion and perseverance at a task without the continual need for adult interaction.

A peer tutoring programme to increase the social play of Sarah and Kate could also be incorporated, where non-retarded peers could volunteer on a daily basis to include these children in their play at lunchtime.

The data also suggests that the teachers would benefit from feedback concerning their use of instructions and the way in which the Down's Syndrome children respond to these instructions. The use of specific instructions is likely to yield higher rates of compliance and correctness, than the use of more general instructions, such as those in the example on page 58. Perhaps teachers could make more use of these types of instructions with the Down's Syndrome children. Also, since the Down's Syndrome children followed correctly only one third of the group academic instructions, whereas they followed two thirds of the individual academic instruct-

ions, it seems likely that the Down's Syndrome children could profit from some individualized academic instruction(s) matched to the child's cognitive ability following the group academic instruction.

Further research is needed to investigate the content of the curriculum and its appropriateness for the Down's Syndrome child. Given the fact, that Down's Syndrome children learn at a slower rate (Harris, 1977) and cannot learn everything presented in the regular curriculum, then decisions need to be made as to what target skills should be aimed at during the different subjects of the curriculum and during the individual teaching sessions with the teacher aide. When the teacher aide teaches new skills, usually in a one-to-one teaching situation, it is essential that the particular skills are functional, age-appropriate and enable the child to function effectively in the classroom. For example, if the child is having difficulty copying letters, then the individual teaching time should be used working on letters that are transferable to reading, spelling and printing in the regular classroom, not by working on the tracing of forms, connecting dot to dot pictures and so on, as these skills are not generalisable to the regular classroom.

Caution must be exercised when using a developmental programme such as the Portage Guide to Early Education Checklist (Bluma, Shearer, Frohman and Hilliard, 1976) with schoolaged slow learning children, such as the subjects of the present study. When the skills from such a programme form the basis of the one-to-one teaching sessions and the skills are not directly related to those needed for regular class participation, then age-inappropriate behaviours are likely to develop which could eventually hinder the child's integration. They may still be stacking blocks and

putting pegs in a pegboard at adolescence. This type of situation had traditionally occurred in many special education facilities (Langone, 1981).

A better approach would be one where essential skills for continued integration are identified, observations of the child in his/her environment are made and a remediation programme based on these skills and observations is implemented. This is likely to result in the learning of more age-appropriate and functional skills. The researcher received the impression that the classroom teachers would welcome help in specifying what to teach as well as appropriate methods to teach it.

In summary, it is encouraging that these Down's Syndrome children are still integrated within the regular school system and continue to make progress a year after their entry to school. However, it is disappointing that Ben (the child with the most skills on the D.S.P.I) was placed in a special class for older children only two months after starting school and has continued to remain there. For the four subjects who participated in the Early Intervention Programme until school entry, the data seems to indicate that they had sufficient skills to enable them to benefit from regular school attendance.

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APPENDIX A

Integration Questionnaire

The following statements reflect various opinions and beliefs that individuals hold towards "integration" or the placement of Down's Syndrome children in ordinary schools. Circle the response that best represents your agreement or disagreement with each statement. Your responses will be kept confidential. No school, children or teachers will ever be identified in any way.

Response Key: Strongly Agree (SA)
 Agree (A)
 Undecided (U)
 Disagree (D)
 Strongly Disagree (SD)

- | | |
|---|-------------|
| 1) The needs of Down's Syndrome children can best be met through special classes or schools. | SA A U D SD |
| 2) Down's Syndrome children take up much more of the teacher's time than other children in the class. | SA A U D SD |
| 3) Down's Syndrome children should attend school as often as their non-retarded peers because they take longer to learn new skills, and they will lag behind even more, if they receive less time at school than the rest of the class. | SA A U D SD |
| 4) The behaviour of Down's Syndrome children sets a bad example for the other children in the class. | SA A U D SD |
| 5) Down's Syndrome children tend to be socially isolated from their non-retarded classmates during unstructured periods such as play and lunchtime. | SA A U D SD |
| 6) Down's Syndrome children develop academic skills more rapidly in special classes than in ordinary classes. | SA A U D SD |
| 7) Down's Syndrome children are more disruptive in the classroom than their same-age peers. | SA A U D SD |
| 8) Having a Down's Syndrome child in the class benefits other children in the class. | SA A U D SD |
| 9) Down's Syndrome children can only be successfully integrated during the first few years of school, after which they should attend a special class or school. | SA A U D SD |
| 10) Compared with non-retarded peers, Down's Syndrome children are less attentive to what they are supposed to be doing. | SA A U D SD |
| 11) Down's Syndrome children follow instructions as well as their classmates do. | SA A U D SD |
| 12) Many of the activities teachers do with 'normal' children in a classroom are appropriate for Down's Syndrome children. | SA A U D SD |

APPENDIX B

Definitions of Classes of Behaviour and Coding Schedule used during Structured Observations in the Classroom.

Column 1. Indicates type of interaction subject is engaged in.

- C Peer initiated to subject: Peer verbally or physically (e.g. by tapping on shoulder) initiates interaction with subject and 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).
- C Subject initiated to peer: Subject initiates interaction verbally or physically and peer 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).
- A Subject initiated to adult/teacher: Subject verbally or physically 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.
- Q Adult/teacher asks questions or provides opportunity for subject to perform: Adult/teacher asks a question individually - not directed to the class as a whole. e.g.
 "Anna, what did the cat in the story do?"
 "David, show everyone where the blue box is".
- Questions to be categorised according to whether they are open or closed.
- Qd Closed question: A question requiring a one-word answer, usually a 'yes' or 'no' answer. e.g.
 "Did mummy make your new dress?"
- Qo Open question: A question or statement requiring more details than a 'yes' or 'no' answer. e.g.
 "What are you making?"
 "Tell me what you did yesterday".
- No interaction.

Column 2. Indicates whether the subject is on or off-task during the interval. Also indicates whether the subject is disruptive.

- ✓ On-task: Eye contact to the teacher, task materials, or peer who is performing in front of the class. Child must be on-task for at least 6 out of the 10 seconds. On-task behaviour includes taking out and tidying up of materials, lining up in a row, sitting on the mat, 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 the 10 seconds.

D Disruptive behaviour: Behaviour which interferes with the task of others, e.g. hits peers, throws objects, talks to peers when not permitted, speaks out of turn, makes loud noises, climbs on furniture when required to sit.

Column 3. Indicates type of teacher attention given to subject. Teacher initiated comments to the subject and comments about the subject's behaviour.

T₁ Teacher attends to subject who is behaving appropriately (i.e. child is on-task). Includes verbal praise, encouragement, attention paid to subject's correct answer or appropriate behaviour, smiles at child engaging in on-task behaviour.

T₂ Teacher attends to child who is behaving inappropriately (i.e. child is either off-task or disruptive). Includes teacher reprimands, criticises, comments on subject's wrong answer or inappropriate behaviour, frowns at child engaging in off-task behaviour and glares.

T₁ Misplaced reprimands: Teacher attends negatively to on-task behaviour by engaging in T₂ type of attention when child is on-task (see above description).

Column 4. Indicates type of teacher instructions and whether subject complies or does not comply.

G Group instructions: Teacher gives an instruction directed to at least two children.

I Individual instructions: Teacher gives an instruction to the subject. Teacher states subject's name, e.g. "Susan, sit down now", or makes eye contact with the subject while giving the instruction. Each time an individual instruction is given, it is recorded, e.g. if the teacher repeats an instruction four times during the 10-second interval, then the following would be recorded, IIII. Child has to engage in the task even not 100% correct. e.g. "draw 6 circles" and child draws 3, is still following instructions.

C Compliance: Subject carries out request within 60 seconds, even if not entirely correct, e.g. if draws 5 instead of 6 circles.

N Non-compliance: Subject does not carry out request within 60 seconds.

APPENDIX C

Modified Version of the Social Participation Scale

Unoccupied behaviour: Standing, sitting or squatting, facing away from other children, staring into space, not engaged in any form of observable activity.

Onlooker: Subject's face and eyes oriented towards child(ren) engaged in an activity within a distance of six feet.

Solitary play: Subject is engaged in an observable activity with toys or imaginary objects and totally uninvolved with other children.

Parallel play: Subject is engaged in same activity as another child or children but plays beside the child or children within a distance of approximately three feet. Subject does not interact with the other child or children although he/she may imitate their play.

Associative play: The child plays with other children, includes 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 common activity or interest.

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 organised 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. The goal as well as the method of attaining it necessitates a division of labour, taking of different roles by the various group members and the organisation of activity so that the efforts of one child are supplemented by those of another.

Inappropriate interaction: This category may be used in addition to associative and co-operative types of play when the subject interacts inappropriately with another child through the use of physical aggression by pushing, shoving, tripping, scratching, biting, hair pulling, kicking, pulling clothes, using inappropriate communication such as swearing, name calling, getting in the way of other children, interfering in a group activity.

APPENDIX D

List of 40 Developmental Tasks selected from Levels 4 and 5 of the
Down's Syndrome Performance Inventory (D.S.P.I.)

- 1) Sight reads own name
- 2) Identifies lower case letters of alphabet
- 3) Identifies upper case letters of alphabet
- 4) Orally reads 1 sentence and answers questions "who" "what"
- 5) Matches pictures of opposites, clean/dirty, boy/girl, hard/soft, happy/sad, fat/thin,
- 6) Sight reads 5 words
- 7) Sight reads 20 words
- 8) Carries out a series of 3 directions
- 9) Retells 3 facts from a familiar story
- 10) Prints numbers 1-5
- 11) Understands location, i.e. behind, beside, away from, in front of
- 12) Understands location, i.e. on, under, around, through, off
- 13) Names numerals 1-5
- 14) Names numerals 6-10
- 15) Matches numeral to set up to number 5
- 16) Points to 5 pictures by description
- 17) Puts on/takes off clothes (includes buttoning)
- 18) Matches symbols such as alphabet letters
- 19) Copies letters of alphabet
- 20) Names or selects missing number in sequence
- 21) Copies a triangle
- 22) Traces preprinting exercises e.g.  
- 23) Copies preprinting exercises e.g.  
- 24) Traces first name
- 25) Prints first name
- 26) Colours in picture using 3 colours, i.e. picture has 3 components such as a boat with 2 sails and a base
- 27) Stays in kindy/school grounds during free play and lunchtime
- 28) Completes 8 piece puzzle
- 29) Completes 12 piece puzzle
- 30) Works at a given task for 7-10 minutes
- 31) Blows nose when appropriate
- 32) Cuts 5 inches using scissors
- 33) Selects colours: red, blue, green, yellow, white, black
- 34) Draws face with eyes, nose, ears, mouth and hair
- 35) Identifies objects as same/different
- 36) Asks questions beginning with "what?", "where?", "who?"
- 37) Says a simple nursery rhyme or finger play
- 38) Draws a square on cue
- 39) Responds correctly to "What do you do when you are thirsty? hot? sick?"
- 40) Given 5 known objects, tells which are missing when 2 or more are taken away