Preparation of infants and young children with disabilities for mainstream pre-school and primary education in Singapore

Dr Marilyn M Quah
National Institute of Education
Nanyang Technological University
469 Bukit Timah Road
Singapore 259756

Abstract

This paper describes the pilot project (Project ASSIST) on early intervention of 40 disabled infants between the ages of two and five years. Its main objective was to look into the feasibility of integrating children with mild disabilities into mainstream pre-school centres in Singapore. The intervention goals were related to the problems encountered by the children, their families and teachers. Professional staff such as occupational therapists, physiotherapists, speech therapists and psychologists intervened through providing consultations to parents and teachers who were taught the intervention follow-up. An evaluation conducted after nine months of the programme (I) showed high levels of peer and school personnel acceptance, (ii) indicated that Project ASSIST was an important service to both children and their families, and (iii) demonstrated the feasibility of integrating children with disabilities into mainstream pre-school centres.
Preparing infants and young children with disabilities for mainstream pre-school and primary education in Singapore

Introduction

Early intervention can be remedial or preventive in nature - remediating existing developmental problems or preventing their occurrence. It may focus on the child alone or on the child with the family's involvement. Early intervention programmes can be centre-based, home-based, hospital-based, or in combination. Early intervention can benefit children with mild disabilities presently attending segregated special schools and allow them to be integrated into mainstream schools. Research on the efficacy of early stimulation with disadvantaged and 'at risk' children is abundant and well documented (Heber, Garber, Harrington, Hoffman & Galendar, 1972; Heber & Garber, 1975).

Bronfenbrenner (1974) summarised research findings from two types of early intervention programmes: (a) those conducted in group pre-school settings outside the home, and (b) those conducted in the home with regularly scheduled visits by a trained person who worked with the child or parents, or both. He concluded that all pre-school programmes resulted in substantial gains in the children's IQ scores and other cognitive measures and these gains were maintained as long as the programme lasted but gains tended to 'wash out' when the programmes were terminated and there was no 'follow-through' of services. The home-based programmes showed outcomes similar to pre-school interventions. However, children in parent-child interventions (in contrast to group-centre-based programmes) showed gains that maintained longer - some three to four years after the termination of the programme.

Benefits of early intervention for young children with other types of disabilities have also been documented. Results reported on the University of Washington Early Intervention Programme for Down's Syndrome Children and its outreach programmes (Hayden & Dmitriev, 1975; Hayden & Haring, 1976, 1977; Oelwein, Fewell & Pruett, 1985) show that early intervention is successful in generating and maintaining high rates of developmental progress in these children. Ramey, Stedman, Borders-Patterson and Mengal (1978), and Ramey, Yeates and Short (1984) reported the effects of early intervention with mildly retarded pre-schoolers. Based on their review of reports from a number of early intervention programmes, the researchers concluded that systematic early education programmes can produce superior intellectual performance in mildly retarded children over similar groups who do not receive such intervention.

In many of the studies reviewed, the researchers found that early intervention was critical in enhancing the development of children with disabilities both socially and academically. The children's increased developmental and educational gains and decreased dependence upon social institutions, as well as the family's increased ability to cope with the children's presence and perhaps their increased ability for employment, provided economic as well as social benefits. Early education and training can also minimise possibilities that a child will develop secondary disabilities and can increase the chances that developmental skills will be acquired when they otherwise might be delayed or simply not learned (Peterson, 1988). In addition, Wade and Moore (1992) emphasised the importance of teacher attitude in accepting pupils with special educational needs and hence, the importance of teacher education. The teacher, in turn, provided a positive role model for changing the attitudes of the peer group, which was just as important.
Provisions for special needs in Singapore

Until 1988, special education in Singapore was provided by seven voluntary associations in 11 special education schools (Quah, 1990). There are now 15 special schools catering to a wide range of learning difficulties. The special schools generally provide educational programmes for disabled children from age six to sixteen. However, a number of these schools also provide pre-school programmes for younger children.

In Singapore, special educational provisions are generally provided outside the mainstream. The present feeling is that whenever appropriate and feasible, special education should be provided within the regular educational system. No child should be placed in a special school if he/she can be well educated in a regular school. The Ministry of Education in Singapore integrates children with hearing and visual impairments at both primary and secondary levels. Special education should be organised as a continuum ranging from total segregation to partial integration to total integration. Placement of a disabled child at any point on this continuum should be dependent on his/her abilities and needs (Quah, 1993).

Setting up the EIPIC task force

In 1991, the National Council of Social Service (NCSS) set up a Task Force for an Early Intervention Programme for Infants and Young Children (EIPIC) under the chairmanship of the author to look into the feasibility of setting up an integration support programme for pre-schoolers with mild disabilities. The Task Force was thus established on the belief that early intervention was crucial in developing the potential of children with disabilities.

The Task Force comprised professionals from various fields - special education, medicine, pre-school education, and administration. The main objective of the Task Force was to explore the feasibility of setting up an early intervention programme to integrate children with mild disabilities into mainstream pre-school centres (child care centres, nurseries and kindergartens). After the early intervention programme (or ASSIST Programme) was set up a year later, the objectives were expanded to include the following:

* to provide on-going support and advice to the ASSIST programme
* to provide support and inputs in the (a) consideration and approval of pre-school centres for participation, and, (b) submission of the interim and final programme evaluation reports
* to review current EIPIC programmes run by the voluntary welfare organisations (VWOs)
* to review current EIPIC programmes run by VWOs
* to identify gaps in service provision for EIPIC
* to make recommendations to fill existing gaps.

Setting up the ASSIST programme

Members of the Task Force visited a number of child care centres, nurseries and kindergartens in different parts of the island to assess the suitability of these pre-school centres for infants with disabilities. At the same time, they took the opportunity to introduce the concept of integration support for these children. A needs assessment was then carried out to identify the need for early intervention programmes for children with disabilities from birth to five years of age and approximately 254 children with disabilities were identified who might require some form of early intervention.
From the needs assessment, it was found that children with physical disabilities faced many problems in getting admission into mainstream child care centres, nurseries and kindergartens. These include:

(a) a lack of experience and training on the part of mainstream teachers in handling children with disabilities,
(b) a lack of resources and facilities to cater to the special needs of children with disabilities,
(c) parents' lack of information, and,
(d) a lack of access to support from trained personnel.

Educators and therapists working with children with disabilities have often stressed the importance of integrating the latter into mainstream pre-school centres. Mainstream pre-school centres provide a more stimulating environment and quality pre-school education programme which could further the social, intellectual and emotional development of children with disabilities. In view of this, the Task Force recommended the setting up of the ASSIST programme to look into the needs of children with disabilities who had the potential for integration and seek their integration into mainstream pre-school centres as soon as possible.

The sample

As mentioned earlier, 254 children with disabilities were identified as suitable for integration through the needs assessment. Using criteria of age (from 2 to 3 years) and disability (mild disabilities and close to average intelligence), only 40 children were selected for the pilot Project ASSIST. The sample also comprised the parents, principals and teachers of these children. It was important that children selected for the ASSIST programme could benefit from the early intervention programme as the main objective was to later integrate them into the mainstream primary schools from age six. The selected children were enrolled in pre-school centres at various locations as close to their homes as possible.

Instrumentation and procedure

The cognitive, social and motor skills attained by the children were assessed through ratings on their individual education plans (IEPs). Progress of these skills were monitored periodically by the programme director on a three-point scale (1=No change; 2=Progress; 3=Skill achieved). Parents and school personnel were involved in the setting of goals, short-term objectives and ratings of the specified skills in their IEPs. The children were rated on their achievement of the skills specified in their IEPs. The objective was to get all children to achieve at least 50 percent of the skills and to show progress in another 20 percent of the skills specified in their IEPs.

The instruments used were a standardised test and a specially constructed questionnaire. The British Ability Scales (Elliot, Murray & Pearson, 1983) was used to assess the cognitive development of the children. The children's social interactions were assessed based on parents' ratings on the extent of communication between the disabled children and their peers after nine months in the programme. Peer acceptance was measured by feedback from parents and teachers through a structured questionnaire on the incidence of positive interactions versus negative interactions.
Admission to the ASSIST programme

Children were admitted to the ASSIST programme based on two criteria: (a) age 2-5 years, and (b) physical disability with at least average intelligence. The sequence of the admission protocol is given in Figure 1.

Figure 1: The Sequence of the Intake Protocol of ASSIST

The goals and objectives of the ASSIST programme were:

**Goals**

1. To provide support to the special needs of the children with.

**Objectives**

1.1 After 9 months in the programme, all children should achieve 50% of the skills specified in the goals of the children's IEPs and show progress in 20% of the other skills to be achieved in the IEPs.

1.2 80% of the children will achieve higher scores in the BAS after 9 months in the programme.

1.3 All children to reach successful interaction level as demonstrated by ability to interact with able-bodied peers and ability to communicate meaningfully after 9 months in the programme.
2 To assist families in the management of their children with disabilities.

3 To increase staff knowledge and acceptance of the children with disabilities.

4 To demonstrate peer acceptance of children with disabilities.

Many of the centres visited were willing to admit children with mild disabilities if specialist help was available. However, some difficulties were also encountered in the selection of these centres. For instance, some teachers and administrators of these centres expressed reservations about integrating children with disabilities into their centres. Some were concerned about the reactions from parents with non-disabled children, who might see the presence of disabled children as taking too much of the teacher's time and attention at the expense of time spent with their children. In other instances, the pre-school centres were not accessible to children with physical disabilities. Transportation also posed a problem as most children were not able to travel by public transport. The Task Force also had problems matching children to the centres nearest their homes. The pre-school centres which eventually participated in the ASSIST programme were privately owned (39.6%), run by voluntary welfare organisations (35.4%) or centres owned by the Peoples Action Party Community Foundation (14.6%) and the National Trades Union Congress (10.4%) (Table 1).

Table 1: Types of Mainstream Pre-school Centres where Children with Disabilities were Placed

<table>
<thead>
<tr>
<th>Types of Pre-school Centres</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private kindergartens</td>
<td>19</td>
<td>39.6</td>
</tr>
<tr>
<td>Voluntary welfare organisations</td>
<td>17</td>
<td>35.4</td>
</tr>
<tr>
<td>PAP Community Foundation</td>
<td>7</td>
<td>14.6</td>
</tr>
<tr>
<td>National Trades Union Congress</td>
<td>5</td>
<td>10.4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>48</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

(*Exceeds 40 because some children attended more than 1 centre due to transfers*)
Services provided by ASSIST

The services provided by the ASSIST programme included:

1 **Networking**
Liaison was established with clinical therapists and physicians by networking with hospitals and VWOs. The disabled children's needs in school, community and home were highlighted through:

1.1 formal presentations to hospital rehabilitation departments and VWOs or at symposia and talks.
1.2 case conferences with therapists from hospitals and VWOs.
1.3 ASSIST programme promotional materials and caseload updates.
1.4 accompanying the children to clinical appointments to clarify limitations of activities at school and to liaise with doctors for referrals to other agencies.

2 **Consultation to teachers/principals/supervisors of pre-school centres**
Consultation services were provided to teachers upon request. These included the following:

2.1 providing suggestions on specific intervention activities which might be developed into IEPs.
2.2 educating teachers regarding the children's limitations and potentials.
2.3 acting as advocate for children with disabilities.
2.4 consulting with regard to adaptations within school and other problem-solving matters.

3 **Support to parents and teachers**
Support to parents and children was provided by:

3.1 investigating and securing of placements in pre-school centres.
3.2 conducting home visits to assess social history, financial situation, fine and gross motor functioning, language and social abilities.
3.3 conferencing with school personnel on social adjustment, task modification and physical needs.
3.4 accompanying parents to clinical appointments at hospitals or clinics to explain diagnosis and obtain the appropriate documentation for subsidies.
3.5 contacting through telephone for networking.
3.6 writing support letters for parents to other organisations.
3.7 assisting in applications for financial assistance
3.8 assessing and providing adaptive equipment for children's special needs.
3.9 developing IEPs in consultation with parents.

4 **Public education**
To increase public and professional awareness of these children's needs, educational booklets on Cerebral Palsy and Spina Bifida and the Therapy Word Guide were compiled and disseminated to parents and relevant professionals at hospitals and related agencies.

**Evaluation**

An evaluation of the ASSIST programme was done nine months after the implementation of the programme to assess the level of success of ASSIST in achieving its goals and objectives. The posttest instruments (like those of the pretest) used were the British Ability Scales and three sets of specially constructed questionnaires which were administered, one to the school personnel (School.
Personnel Questionnaire) and two sets to the parents (Parents' Questionnaire and Family Needs Assessment). An Individual Education Plan containing information of various aspects of the child's performance such as social skills, gross and fine motor skills, cognitive and communicative skills were also used.

Results and discussion

It was targetted that all children in Project ASSIST would achieve at least 50% of the skills and show progress in another 20% of the skills as specified in their IEPs. However, it was found that only 77.2% of the children had achieved at least 50% of the skills specified in their IEPs. One reason for the apparent underachievement of this target could be attributed to the fact that during the first year of its establishment, the focus of the project was on placement of children in centres and immediate needs were addressed as required without formal recording. Another reason could be due to the fact that many of the specified skills in the IEPs needed to be supplemented by therapy. Many of the children (36.4%) assessed to be in need of therapy were not receiving the recommended intervention programme given to parents. The four reasons for the children missing therapy were:

(a) Cost of therapy fees
(b) Lack of time, especially for dual career families as no known clinic operated on Saturdays or Sundays
(c) Problems with transportation to the clinic (cost, distance, problems with carrying mobility aids, accessibility)
(d) Problems with baby-sitting arrangements for younger siblings.

The children's pre and post IQ scores based on their performance in the BAS were examined using a paired t-test. The t-test revealed that there were no significant differences between the means in the pre and posttest scores (t=0.77, p>0.1). The inconclusive results could be due to a number of factors such as those mentioned earlier. Feedback from parents seemed to indicate that another factor was a possibility - the replacement of testers at the posttest. All the three psychologists who conducted the tests were foreigners (English), but the one who conducted the posttest was new to the children and according to the parents who were present at the posttest, did not spend any time establishing rapport with them before testing, whereas the two who conducted the pretest were known to the children and played with the children prior to testing them.

Based on parents' feedback, the children seemed to have achieved satisfactory communication skills to interact with their peers. When asked if other children in the preschool centres talked to their children, most parents responded “much” (50%) or “some” (36.4%). The majority of the parents also responded positively to the question asking if their children communicated with the other children in the pre-school centres, 54.5% and 45.5% reported “much” and “some” communication respectively (Tables 2 and 3).
Table 2: Peer Interaction with Children with Disabilities

<table>
<thead>
<tr>
<th>Other children’s interaction with child</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much</td>
<td>50.0</td>
</tr>
<tr>
<td>Some</td>
<td>36.4</td>
</tr>
<tr>
<td>Little</td>
<td>9.0</td>
</tr>
<tr>
<td>None</td>
<td>0.0</td>
</tr>
<tr>
<td>Don’t know</td>
<td>4.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 3: Children with Disabilities Interaction with Peers

<table>
<thead>
<tr>
<th>Other children’s interaction with child</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much</td>
<td>54.5</td>
</tr>
<tr>
<td>Some</td>
<td>45.5</td>
</tr>
<tr>
<td>Little</td>
<td>0.0</td>
</tr>
<tr>
<td>None</td>
<td>0.0</td>
</tr>
<tr>
<td>Don’t know</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The majority of parents (87.0%) expressed concerned about their children attending mainstream pre-schools, with 60.9% reporting “much” concern and 13.1% reporting “some” concern. Nonetheless, despite their concerns, most parents (78.3%) would still want their children to be integrated even if ASSIST services were not available. It was heartening to note that the majority of parents seemed eager to be actively involved in the rehabilitation of their children, with 78.3% responding that they wanted to be “always” actively involved, and 21.3% responding that they would like to be involved “sometimes”.

The most frequently identified needs of the families seemed to be regarding information on the children’s disability (90.9%), with assistance and training in self-help skills (86.4%) and counselling support (86.4%) being the next most frequently identified needs area. Project ASSIST had intended that all families would have 75% of their needs identified, addressed, managed or referred to relevant services within nine months after enrolment. Based on parents’ feedback, 77.2% of families had at least 75% of their identified needs addressed and many of the families (45.5%) had all their needs addressed.

A written quiz was used to assess staff knowledge and acceptance of the children with disabilities. Their responses showed that 85.7% of the teachers scored more than 80% on the quiz which exceeded the programme’s objective which was set at 80% of the teachers scoring 80% in the knowledge quiz on understanding the special needs of the children with disabilities. Apart from knowledge, Project ASSIST appeared to be also very successful with regard to teachers’ acceptance of integration. Although 93.9% of the school personnel reported some difficulties having children with disabilities in their centres, only 3% of them felt that children with physical disabilities but with normal intelligence should not be integrated. Almost 97% of the school
personnel felt that Project ASSIST was an important service for their centres. Most of the school personnel (71.9%) reported that they had at least some understanding of the diagnosis of the children with disabilities in their centres and 63.6% reported that they had received at least some information on this from Project ASSIST. When asked if they would like to be involved with the on-going planning of therapy recommendations of goals, 25% indicated that they would like to be involved “always” and 65.6% said they would like to be involved “sometimes”. Only 3% said they would not like to be involved.

Peer acceptance was monitored through feedback from parents and teachers on the incidence of six positive and six negative interactions between the children with disabilities and their peers. For each child, the average score of peer acceptance based on the feedback provided by parents and teachers was computed. Incidence of a positive interaction was given a score of “1” and incidence of a negative interaction received a score of “-1”. Therefore, positive scores would indicate that incidence of positive interactions has exceeded incidence of negative interactions and vice versa. For example, a score of “6” is the perfect score indicating incidence of all positive interactions but no incidence of negative interactions. On the other hand, a score of “-6” is the worst score possible indicating incidence of all six negative interactions.

Project ASSIST hoped that there would be peer acceptance after nine months in the programme, that is, that all children would have positive peer acceptance scores. In this respect, Project ASSIST had certainly met its target for peer acceptance as all children had positive peer acceptance scores, with the majority (71.4%) scoring “5” or better.

Finally, Project ASSIST was successful in reaching its target of placing 40 children with disabilities aged two to five years into regular nurseries, child care centres and kindergartens.

Conclusion

The ultimate aim for the population with disabilities is to minimise the effects of its impairment so that it may live a life that is as normal as possible. Therefore, when services for the disabled are directed only toward refinement of motor skills, it will be of minimum benefit if these children remained uneducated and isolated from society. Viewed in this light, Project ASSIST is a valuable programme as it seeks to provide children with disabilities with positive experiences which are also critical to their future integration into the mainstream working environment.

As seen from the results, there were high levels of peer and school personnel acceptance of integration. The children with disabilities also received the targeted level of communication abilities for social interaction with their non-disabled peers. The programme therefore, allowed these children to experience acceptance at a critical age before they were hampered by poor self-esteem resulting from negative responses to their disabilities. The children with disabilities were able to have access to quality pre-school education in the mainstream which will be essential for success in mainstream primary and secondary schools in future. Besides the benefits to the children with disabilities, non-disabled peers were taught important social values such as sharing, perseverance and sympathy through interacting with their disabled peers and observing the obstacles their friends with disabilities have to overcome in mastering “simple” daily tasks (Quah, 1993). In addition, Project ASSIST was able to help all the families identify their needs and receive various forms of assistance and support in managing them.
Project ASSIST was thus successful in meeting virtually all its objectives. Most important of all, the results of the evaluation after only nine months showed that integration of children with disabilities into mainstream pre-school centres was both feasible and desirable in Singapore.

References


