

THE SPECIAL EDUCATION TRANSPORT DEMONSTRATION PROJECT:
A STEP IN THE DEVELOPMENT OF TRANSPORT INDEPENDENCE
FOR COMMUNICATION - DISABLED CHILDREN

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ABSTRACT: *This paper reviews a unique demonstration project in which a controlled 'school bus' service is provided for communication-disabled (deaf, blind and intellectually disabled) school children. The demonstration project was conducted in Brisbane during the 1981 International Year of the Disabled Person for a period of six months.*

The project is evaluated in terms of the cost-effectiveness of the mini-bus school transport system (compared with the usually adopted taxi mode) and the effectiveness of the project in developing transport independence.

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INTRODUCTION

A unique demonstration project in which selected communication-disabled school children travelled independently in 'school mini-buses' was conducted during the 1981 International Year of the Disabled Person by the Metropolitan Transit Authority (MTA) and the Queensland Department of Education, Division of Special Education. This project (Special Education Transport : SET) was the product of a review of transport problems for children attending special schools and other special education facilities throughout Queensland. The review involved conducting a survey in all State and non-State Special Education Centres to determine the number of children at various levels of transport independence, as shown in their daily school travel behaviour and capabilities.

The Transport Independence Concept

Transport independence levels can be identified according to level of ability in using public transport. This system has been adopted by researchers of transport needs for the disabled (see Daunt 1980) and is applied here. Six levels of transport independence have been identified for disabled children. These levels range from "most dependent" children who require special restraining devices to be fitted to a vehicle, 'semi-independent' children who require assistance in boarding a vehicle but are sufficiently competent to travel unsupervised, and 'adult travel' children who are capable of negotiating all facets of public transport travel.

Independence requirements for each of the six levels of public transport use are detailed in Table 1. Children selected for the demonstration project are from the "travel assisted" transport independence level. From the state-wide survey of special education centres in Queensland, it was found that almost 20% (750) of children attending these schools in metropolitan Brisbane are from the "travel assisted" transport independence level.

PROBLEM DEFINITION

Methods of daily transport available for children attending special education schools were restricted to a door-to-door taxi service and conventional public transport. These methods met the school transport needs of only those children at the extreme ends of the scale of transport independence. Therefore, no avenue was available to aid children at other transport independence levels in progressing towards fully independent use of public transport i.e. the 'adult travel' transport independence level. Thus, the problem was to implement a transport system catering for these "intermediate" children's transport needs.

Other demonstration projects that have been conducted for disabled children are school bus services generally for the mentally-handicapped (Falcocchio and Cantilli 1974). The SET demonstration project provides a school bus service for children with intellectual, sight and hearing disabilities.

The main task addressed by the SET project was to determine, for a group of communication-disabled school children assessed to be at an appropriate level of transport independence, if the provision of a "school mini-bus" transport service would aid in the development of transport independence. A secondary task was to identify the cost-effectiveness to the Education Department of the mini-bus system compared with the taxi system.

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TABLE 1

Scale of Independence Levels

INDEPENDENCE LEVEL	AMOUNT OF SUPERVISION REQUIRED	TYPE OF TRANSPORT
<p>1. <u>Adult Travel</u> The child negotiates all public transport services including change of buses and trains without difficulty.</p>	Nil	General public transport (train, bus) school transport service requiring unescorted independent travel to and from a pick-up point.
<p>2. <u>Independent Child</u> Child is able to wait by the side of road, recognise his bus and know where to get off. His physical handicaps, if any, do not bar him from climbing the bus steps and taking a seat. He is also capable of standing while the bus is in motion.</p>	Nil	General public transport <u>for familiar route</u> . School transport service over contracted route (unescorted independent travel to and from a pick-up point).
<p>3. <u>Semi-Independent</u> The child lacks the competence to wait by the side of the road and/or recognise his bus. However, once put on a public bus at one end can sit unaccompanied to his destination. The bus driver may have to stop at the appropriate destination. If the set-down point is busy, the child may have to be met. The child would be free from behavioural problems.</p>	<p>(a) Supervision from home and school to pick-up point.</p> <p>(b) Perhaps supervision from set-down point to school or home.</p>	General public transport for familiar route. School transport service over contracted route.
<p>4. <u>Travel Assisted</u> These children have not developed the skills to travel in public alone. They require mild supervision at all stages of the journey. This supervision could be by the driver if the vehicle is small or by a bus supervisor or escort if the vehicle is large.</p>	<p>(a) Supervision from home to pick-up point.</p> <p>(b) On transport service.</p> <p>(c) From vehicle to school.</p> <p>Supervision (a), (b), (c) could be provided by different persons.</p>	<p>(i) General public transport only where suitable escort is available.</p> <p>(ii) Contracted service providing escort.</p> <p>(iii) Mini-Bus or taxi.</p>

TABLE 1 CONTINUED OVER

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TABLE 1 CONTINUED

Scale of Independence Levels

Independence Level	Amount of Supervision Required	Type of Transport
<p>5. <u>Dependent</u> These children are the most severely handicapped, either physically or mentally. They may be incontinent, epileptic, require special restraining devices or the close proximity to a supervisor at all times.</p>	<p>(a) Supervision from home to school and if necessary (b) Assistance with mobility.</p>	<p>(i) Contracted service providing escort. (ii) Mini-bus or taxi-vehicles of standard design. Portable fittings may be required.</p>
<p>6. <u>Most Dependent</u> As above but cannot be carried in vehicles with standard design and fittings because of the severity of physical handicaps.</p>	<p>(a) Supervision from home to school and (b) Assistance with mobility.</p>	<p>Specially built or modified and fitted vehicles.</p>
<p><u>Other : Private Transport</u> eg. walks, rides a bike, private car (reason)</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>		

The controlled school bus service operated as a demonstration project for the six month period 29 April - 18 September, 1981 i.e. mid-semester, semester one to mid-semester, semester two of the 1981 school year. This period was considered sufficient time to assess the value of extending the project under any future Education Department funding.

Twenty-six (26) children participated in the project. The children attended schools for the deaf (14), blind (6) and intellectually-handicapped (6).

Planning for the project was conducted in two phases - research phase and transport planning and operations phase. Details of these phases are discussed below:-

Research Phase

The output of this phase was an initial listing of children and routes considered suitable for the project.

The criteria adopted in selecting children were:-

- .. attending an approved special school;
- .. currently using taxi transport; and
- .. capable of performing the following tasks:-
 - (i) walk some distance to a designated 'pick-up' point;
 - (ii) wait at the designated 'pick-up' point for arrival of bus (it is not necessary for the child to indicate for the bus to stop); and
 - (iii) walk home following set-down at the designated 'drop-off' point.

Transport Planning and Operations Phase

Initially route planning was prepared on the basis of the list of children nominated in the research proposal submitted in late 1980. The list and routes were updated over the period from acceptance of the research proposal to the implementation of the project. Two routes were adopted -- one had a daily return trip distance of 76 kilometres, the other route being 56 kilometres.

Once the routes were decided the operations phase came into effect. Details of the major activities including selection of vehicles and drivers, bus stop and timetable preparations and monitoring are discussed below.

Selection of mini-buses and drivers

Two 14 or 18 seater mini-buses were required for transporting the students. Selection of an operator to provide the services was made from a list of recommendations sought from the State Department of Transport. Selection was made by MTA and Special Education Officers and the teachers. Criteria adopted when selecting the mini-buses included:-

- .. safety features - automatic doors preferred,
 - safety devices on windows,
 - step height and number of entrance steps,
 - seating layout and type (flip seats in aisles were considered dangerous); and

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- other features - ceiling clearance,
- space for storage of school cases.

A contract was prepared specifying administrative details (eg. daily payment arrangements, transport regulations) and operational details including routes, particulars of children on the project, pick-up and drop-off locations and times.

Bus modifications, school bus stops and timetables

Bus modifications including 'SCHOOL BUS' signs and flashing lights were affixed to the mini-buses to conform with Transport Department regulations. Also school bus stops and timetables were prepared to aid the students in using the demonstration project to progress towards completely independent travel on public transport. Council regulations were adhered to when designing and locating the signs thereby ensuring the children's safety. Bus stops were located in safe areas within an easy walking distance from the child's home. No child was required to walk longer than five (5) minutes. Teachers were involved in choosing suitable sites bearing in mind the children's individual characteristics.

The project was identified with the "SET" (Special Education Transport) logo displayed on both the bus stop sign and school timetable. The timetable provides time of arrivals and departures for morning and afternoon services respectively as well as an easily-read schematic route map. Each child was issued with a pass to be shown to the driver on entry to the bus. This pass represents a 'proxy' for a bus ticket.

Monitoring of student's progress

Monitoring of behavioural aspects of the children was organised by the Education Department and achieved through the co-operation of parents, teachers and drivers. Parents provided details on the use of escorts in walking between home and bus stop. Drivers reported misbehaviour both on-board and at the bus stops. School monitoring reports indicated absenteeism and summarised parent and driver reports.

A need was identified for monitoring of driver reliability i.e. timetable and route adherence. Without this, there is a potential for behavioural monitoring results to be distorted - particularly in terms of the independence aspect of walking to the bus stop by a specified time.

Other planning details

An important component of the planning phase was recognising the educational requirements for operating the demonstration project. All parties involved in the project were well informed of its objectives and their role in contributing to the success of the project in meeting these objectives. Throughout the planning phase priority was given to maximising parental involvement to ensure understanding and support of the objectives and operations of the school bus service. Initially, parental approval was sought for their children to participate in the project, information letters advising of progress were sent and a meeting was held to discuss the project with teachers and officers involved in its planning.

To inform the drivers of the particular needs of the special education children they would be transporting to and from school daily, a meeting was organised with teachers and project officers. Route and timetable schedules were provided in the contract.

A "practice" run of the new school bus service was held to help the children adjust to using the new, more difficult mode of school travel. Timetables and passes were distributed to the children for this practice run which was held the afternoon before the project officially commenced.

EVALUATION OF DEMONSTRATION PROJECT

The project was evaluated in terms of the cost-effectiveness of the bus system for school transport and the effectiveness in developing transport independence.

Cost Effectiveness of the Mini-Bus System for School Transport

The total cost to the MTA for funding the project amounted to \$13000. Daily contract fees paid by the Education Department are used when assessing the cost-effectiveness of the mini-bus and taxi school transport systems. In terms of these costs, the mini-bus system proved more cost-effective than the taxi system for the 26 children participating in the demonstration project. Daily costs were \$16 per child per week for the mini-bus system compared with \$21 per child per week for the taxi system. The extent of differences in costs between the two systems will vary depending on seating capacity of mini-buses contracted, rate charged and number of kilometres travelled (daily kilometres travelled in the demonstration project were 132 kilometres).

The total cost of the project including initial "set-up" costs - school bus modifications; design, production and erection of bus stop signs; driver training; timetable preparation - is calculated at \$26 per child per week for the 19 weeks of the demonstration period. The proportion of total costs attributable to "set-up" costs (\$10 per child per week (i.e. about 40%) for the demonstration period) will decrease over the time period the service operates. For example, for 38 weeks the "set-up" costs are \$5 per child per week which is about 24% of total costs for that period.

Effectiveness in Developing Transport Independence

Independence monitoring results provide the basis for assessment of the growth in transport independence. Specifically, the extent of absenteeisms and use of escorts and behavioural problems are examined. Absenteeism from school was identified rather than failure to use school bus service yet attending school by some other means. Extent of escort use was designed to be the main indicator of independence growth i.e. ability to effectively negotiate school mini-bus travel. Behavioural problems were noted for information.

Independence monitoring results are shown in Table 2. This indicates that both absenteeism and the use of escorts were major problems on Route 1, accounting for 64% and 55% respectively of the demonstration period. However, in both instances, only one or two children were responsible for the majority of the problem days. Similarly, on Route 2, one child was mainly responsible for absenteeism accounting for 36% of the demonstration period.

Behavioural problems were observed for some children (4 on Route 1, 2 on Route 2) three of whom regularly misbehaved. Two of these children have been unable to meet the demands of the mini-bus system e.g. they wander from the bus stop, visit friends etc.

SUGGESTION FOR FUTURE PROJECTS

Areas requiring more attention before implementing similar projects are:-

- selection of students;
- understanding of the transport independence concept; and
- monitoring procedure.

TABLE 2
INDEPENDENCE MONITORING RESULTS

Route 1	No. of Children	Absenteeism			Escorts		
		Av. No. of Days Per Child	Total Days	% Total Period	Av. No. of Days Per Child	Total Days	% Total Period
Deaf	9	3 (1 child absent 16 days)	32	36	2	12	14
Blind	4	2 children absent 5 days each	10	11	1	3	3
Intellectually-Handicapped	3	1 child absent 15 days	15	17	3 (1 child escorted 28 days)	34	38
TOTAL	16	-	57	64	-	49	55
Route 2							
Deaf	5	3 (1 child absent 21 days)	32	36	1	3	3
Blind	2	-	0	-		0	-
Intellectually-Handicapped	3		NO RECORDS PROVIDED				
TOTAL	10		32	36		3	3

Duration of Demonstration Project : 89 days

Selection criteria should provide a thorough examination of parents' willingness for their children to participate in the project. In the demonstration project, one child's father failed to understand the independence concept. The father inhibited his son's growth in transport independence by regularly escorting him to the bus stop. Drivers also need to fully appreciate the independence concept. The project revealed that drivers did not always adhere to the strict independence requirements outlined in the contract as route and timetable variations are known to have occurred.

Both transport (route and timetable adherence) and independence monitoring data should be collected. Independence monitoring in the demonstration project focussed on the use of escorts and extent to which behavioural problems occurred when negotiating the more difficult means of school travel. Maintaining complete records for the six (6) month period could not be achieved by two of the three schools in the demonstration project (incomplete records were received for Route 1 for 74% of the period and for 32% of the period for Route 2). Future projects may incorporate more positive measures of growth in transport independence than the escort use and behavioural problem indicators adopted in the demonstration project.

CONCLUSIONS

The demonstration project was an attempt at "breaking down the barriers" by increasing transport independence for communication-disabled children attending special education schools. Most of the children selected were able to meet the challenges of negotiating school bus travel rather than door-to-door taxis for school travel.

The SET project has indicated that with adequate planning a controlled school bus service can supplement the taxi service providing transport independence benefits for a significant number of communication-disabled school children -- both at school and in their adult use of public transport. Indeed, for the demonstration project, the mini-bus system of school travel proved more cost-effective than the taxi system. Thus, the mini-bus system provided both financial and educational benefits for the Education Department.

Following the demonstration period, the Education Department continued the project for the remainder of the 1981 school year. It has been adopted for the 1982 school year and is also under consideration by Regional Special Education Officers.

REFERENCES

Daunt, S. (1980). "Alternative Approaches to Providing Transport for the Handicapped", 6th Australian Transport Research Forum, pp 103-121.

Falcocchio, J., and Contilli, E. (1974). "Transportation and the Disadvantaged", Lexington Books, Lexington.