

THE MINOR IMPAIRMENTS RESEARCH STUDY: AN ENQUIRY INTO MINOR PHYSICAL
IMPAIRMENTS AND CHILDREN'S LEARNING

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In 1980 the Tasmanian Education Department began a long-term project to investigate the implications for the normal school curriculum of minor physical impairments in young children. The project is being conducted jointly with the School Health Service and other professional groups. In the initial phase of the project, 270 Prep. children were extensively tested for minor vision, hearing and motor defects. The paper reports on the development and administration of the testing program and provides a brief summary of the results. It also indicates how the results of the study have influenced policy development to date.

BACKGROUND

The study was initiated by the Research Branch of the Tasmanian Education Department in March, 1980. Initial interest in the area had been stimulated by reports from other States and overseas of children entering school with undetected physical impairments, likely to affect their school performance.

Further interest was stimulated by the Department's growing concern that the gains made in improving standards of literacy and numeracy in schools might not be commensurate with the amount of extra resources allocated to these areas. Inevitably, the question was posed as to whether funds had been put in the right direction. Had there been too much emphasis on the social and environmental aspects of educational disadvantage? Had the effects of physical factors been under-estimated? Late in 1979, a recommendation was made in a policy statement on literacy and numeracy that the minor impairments area should be investigated.

A third factor to influence the decision to undertake the study came from the School Health Service. The Service had approached the Education Department for assistance with a review of screening programs in schools. It was particularly interested in reviewing the vision testing program, which had been the subject of some controversy.

As a result of the factors outlined above, early in 1980 the Research Branch convened a meeting of interested groups and the study began.

The main purpose of the study was to generally explore the minor impairments area and to indicate if further research was needed. The specific aims were:

- (i) to establish an indication of the incidence of minor vision, hearing and motor skill impairments in young school children in Tasmania
- (ii) to explore the curriculum implications of minor physical impairments
- (iii) to assist the School Health Service with its review of school screening procedures.

A Senior Research Officer was appointed Co-ordinator of the study and a joint Education/Health Department Advisory Committee was formed. The Committee was made up of senior officers from the School Health Service and from various sections within the Education Department, including the Primary Directorate, Special Education, Guidance Services, the Curriculum Centre and Regional office.

The Committee's main functions were to advise on major decisions; to express the view-point of different groups when contentious issues arose and to keep the system informed about the project.

The Co-ordinator had the task of planning and directing the study; of collating and interpreting information; of keeping various groups, such as schools, in touch with progress and of preparing reports.

Seven government primary schools in the Hobart area were invited to participate in the study. The schools were selected on the grounds that they:

- (i) had reasonable medical testing facilities (mostly this meant a separate medical room)
- (ii) were representative of a reasonable socio-economic cross section of schools in Tasmania
- (iii) had adequate numbers of Prep. children.

All 271 Prep. children in the seven schools participated in the study.

The Prep. group was selected for the following reasons:

- (i) it is a critical period for basic skills development
- (ii) children at that age seem to be particularly vulnerable to minor impairments. Some vision conditions, for example, are irreversible if not corrected before eight years of age.
- (iii) choosing a Prep. group provided for the possibility of a longitudinal study.

The sex distribution of the sample population was normal and the average age of the children in September, 1980 was five years and 10 months.

Throughout 1980 the children were given an extensive series of tests. The tests were aimed mainly at identifying minor vision, hearing and motor skill defects, although a number of additional tests, some of them related to more general intellectual development, were also given. A description of the testing program and the processes involved in developing and administering it is given below.

THE TESTING PROGRAM

Early on it was agreed that any testing program used for the project should meet three general criteria:

- (i) it must incorporate the existing School Health Service screening procedures
- (ii) it must be feasible in terms of eventual system-wide application
- (iii) it must be realistic, as resources for the study were limited.

The scope of the final testing program was much broader than initially anticipated. Originally, the focus had been on minor physical defects related to vision, hearing and motor development. As the study progressed, however, several circumstances led to a change in this rather simplistic approach.

First, the Committee faced the problem of trying to define a "minor" impairment. It quickly became apparent that while this might be possible in medical terms, it was virtually impossible in educational terms. A brief literature search confirmed that many other groups had grappled with the same problem and come to a similar conclusion; namely, that a disability which is considered a learning impairment for one child may be adequately compensated for and accommodated by another child. The influential Warnock Report on Special Education^I summed up the Committee's thinking very well:

"There is no agreed cut and dried distinction between the concept of handicap and other related concepts such as disability, incapacity and disadvantage. Neither is there a simple relationship between handicap in educational terms and the severity of a disability in medical or a disadvantage in social terms."

and,

"It is thus impossible to establish precise criteria for defining what constitutes handicap."

Once the Committee had accepted that a "minor" impairment could not be precisely defined, the task became one of attempting to identify a range of conditions likely to be found in normal children and likely to lead to some form of educational disadvantage. This threw the field wide open and resulted in a heavy reliance on the research literature and advice from experts. It also meant that the Committee made some arbitrary decisions as to which tests were most appropriate in an educational context.

The second reason for the expansion of the testing program follows on from the first. It was not possible to retain the focus on physical defects alone. Evidently the distinction

between physical functioning and perceptual functioning was not always clear-cut. Keir's work at the Royal Childrens' Hospital in Melbourne, for example, indicated that some children may be auditorily disadvantaged because of a break-down in perceptual functioning, even though their hearing acuity is normal.² Acting on this advice tests of auditory perception were included in the testing.

Thirdly, as news of the proposed study spread, other research groups became involved. The Psychology Department at the University of Tasmania and the Research and Evaluation Unit at the Mental Health Services Commission wanted to supplement their own research interests through participation in the study. It was agreed that they could have access to the wide range of information collected about the children, on the understanding that they administered special tests to the children and allowed the results to be included in the study. The Psychology Department administered a non-verbal test to predict reading disability and the Mental Health Services Commission administered the Token Test to evaluate childrens' language development. Both groups have subsequently pursued their own research interests and are preparing separate reports.

A third professional group also became involved in the study after it had started. A Hobart Ophthalmologist offered to provide a random sample of 50 children with a specialist eye examination. The generous offer was carried out in the Ophthalmologist's rooms over a two day period. The Research Branch organized appointments, transport and parental consent. The children were accompanied by a parent mainly because the examination, which lasted about 40 minutes, included the insertion of drops to dilate the pupils. The main purposes of the testing were to investigate the incidence of specific eye anomalies which require specialist identification and to provide a comparison with the vision testing carried out using routine screening procedures.

As indicated, the scope of the final testing program was very extensive, covering a wide range of perceptual as well as physical deficits and administered by a range of professional groups. Details of the testing program are shown in Table I.

The question of referral procedures posed a dilemma for the Committee. If immediate action were taken to correct any minor impairments found it would be difficult to gauge their educational consequences and to evaluate the usefulness of any special modifications to the curriculum. Naturally, however, ethical considerations took precedence and it was agreed that the normal referral procedures would be followed. These are shown in Table I.

TABLE I
The Scope of the Testing Program

Test Area	Testing Agency	General Referral Procedure	No. Tested
Functional Vision	School Health Service and Orthoptist (Health Department)	Refer to G.P. of parents' choice.	264
Fine Vision	Ophthalmologist	Refer to School Health Service.	49
Visual Information* processing	Psychology Department, (University of Tasmania)	Separate report being prepared.	201
Auditory acuity	School Health Service (Health Department)	1. Refer to G.P. if hearing loss accompanied by obvious symptoms needing medical treatment. 2. Refer to National Acoustics Laboratory if no obvious symptoms.	265

TABLE I (Cont.)

Test Area	Testing Agency	General Referral Procedure	No. Tested
Auditory Perception*	Speech Pathology Section (Education Department)	No specific follow-up Teacher advised.	136/ 178
Motor Skills	Special Education (Education Department)	1. Individual exercise programs for children with gross motor problems. 2. Refer to Occupational Therapist for children with fine motor problems. 3. Refer to Assessment Centre for children with severe problems.	252
Language Development (Token Test)	Research and Evaluation Unit (Mental Health Services Commission)	Separate report being prepared.	242
General development (Early Assessment)	Guidance Services (Education Department)	Refer to individual School Guidance Officer	250

* These two tests were not administered in all schools which accounts for the smaller numbers tested. Other minor variations in the numbers are attributable to children being absent at the time of testing.

Resources for the study were limited initially as the project had no special financial provisions. One of the many advantages of having a high-level Committee, however, was that it could facilitate the provision of special departmental funds. These provided for the employment of specialist staff to administer parts of the testing program; for the purchase of special equipment and for travel to allow consultation with experts inter-state.

Other resources needed to carry out the project were provided freely by many people, both within the Education Department and outside it, including medical specialists, university staff and special consultants.

Complex processes of negotiation, consultation, co-ordination, decision-making and communication were involved in the development and administration of the testing program.

The Committee had to rely heavily on advice from experts locally and inter-state to select appropriate tests. An extensive literature search had indicated marked division of opinion about the significance of minor physical impairments as a factor in learning disability. Moreover, the research evidence was frequently conflicting and confusing.

In an attempt to resolve some of the problem issues, the Co-ordinator and the head of the School Health Service spent a week in Melbourne visiting various institutions such as the Lincoln Institute, the National Vision Research Centre, the Special Education section at Monash University and the Royal Childrens' Hospital.

The consultations were helpful and led to some problems being clarified, particularly those relating to ways of identifying temporary hearing loss in children. However, the various experts were not able to help with the Committee's most pressing problem i.e. the selection of vision tests. This was primarily because opinion on the significance of vision as a factor in learning disability was so sharply divided.

This conflict of opinion was also evident at the local level. Tasmanian Optometrists had been pressing for some time for a revision of the existing school vision screening program. It was claimed that sizeable numbers of children with vision defects were not being identified and that the specific tests used were inadequate in educational terms.

A second body of eye professionals, the Ophthalmologists, rejected these claims. They held that the screening program was adequate and that there was insufficient research evidence to show that peripheral vision factors, other than gross eye defects, had any effect on childrens' learning.

Substantial research evidence supported both views. The Committee was thus faced with the unenviable task of selecting a series of vision tests which would take account of the Optometrists' concerns as well as incorporate routine screening tests. The final selection had to be negotiated with all groups involved. The offer by a Hobart Ophthalmologist to participate in the testing was aimed at extending the testing program and investigating the Optometrists' claims more fully.

Negotiating support for the project in schools was also a complex process. Early on it became apparent that the success of the project would be heavily dependent on the active co-operation and involvement of the Infant staff in the schools involved. The testing program was lengthy, spreading over several months, and placed considerable demands on both children and teachers.

In general, schools and staff were whole-hearted in their support. In a couple of schools, however, there was some initial resistance to the testing. Some teachers were worried about the possible dangers of 'labelling' children. There was also some concern expressed that schools were being used too often by outside researchers, who did not provide any feed-back to teachers.

Teachers were wary of testing that identified problems without offering some means of over-coming the problem. They needed to be reassured that the project's main interest was on physical defects where there was a likelihood that intervention would be effective. They also wanted to know that the end result of the study would be some workable suggestions for over-coming childrens' problems in the class-room. The importance of practical application was stressed by teachers time and time again, as was the need for frequent personal contact with the Co-ordinator of a project of this nature.

Communication was vital to the project. Not only the participating schools, but also other parts of the system had to be kept in touch with progress. The latter was important, partly because so many groups had an active interest in the project and partly because there was marked division of opinion within the system itself about the educational significance of minor impairments. One of the Advisory Committee's most important functions was to keep the system informed and to put forward the view-points of different groups. Other communication processes included organizing work-shops and seminars for teachers and School Health Sisters; the Co-ordinator speaking at various meetings, such as the Annual Child Health Services Conference in Hobart, and radio talk-back programs, newspaper coverage etc.

As the project took place in the Southern Region of the Education Department, an effort was also made to keep the other two regions informed about the project. The Co-ordinator spoke at meetings with teachers, Guidance Officers, and Regional Office staff.

Parents were also kept informed. A letter had been sent to all parents before the study began, telling them about the project and asking their co-operation in the testing. They were also informed if any problems were encountered. On several occasions, the Co-ordinator acted as a proxy parent and accompanied children for the specialist vision examination.

Negotiating the actual administration of the tests was relatively simple in some cases, because the groups involved were represented by a senior officer on the Advisory Committee. In other cases, however, it was less simple. In several cases it was necessary to first gain approval from the proposed tester; to negotiate their release from normal duties and sometimes to negotiate funds for part-time assistance with the testing. Few problems were encountered in this area, as all those approached were very supportive of the project.

The most difficult organizational aspects of the project were the co-ordination of the various testing groups' activities in schools and the collection and collation of the data.

The testing extended over a full six month period. The usual problems of children changing school, holidays and excursions interrupted the program. The most difficult aspect, however, was to ensure that the schools had a break between the different types of testing and

that no two testers were in the one school at the same time. This was partly to avoid too much disruption to classes and partly in deference to teachers' concerns that there were too many outside researchers working in schools. From the children's point of view, however, the testing appeared to present few problems. The majority of children enjoyed being tested and co-operated fully.

All of the test results were computerized. Coding in some few cases was simple, but in others, such as in the vision results, expert advice was again sought to devise an appropriate coding scheme. As might be expected, a large amount of data was collected and various groups, other than the Research Branch, are using it for research purposes.

THE OUTCOMES OF THE STUDY

1. Results of the testing

A detailed account of the test results can be obtained from Research Report No. 81, Education Department of Tasmania. The five main findings to emerge were:

- (i) The incidence of minor physical impairments was considerably higher than previously recognized. One in five children had a vision defect; one in four had a temporary hearing loss and one in four had a motor skill problem.
- (ii) School Health Service screening procedures were found to be inadequate in several respects.
- (iii) A significant group of children had previously unidentified problems.
- (iv) Over 50% of the children had a vision defect, or a hearing defect, or a motor defect, or a combination of these.
- (v) A small group of children was found to have multiple problems.

The results of the testing, together with the more general educational issues that emerged from the study, gave rise to further research. Two major studies have since been completed. One was a study of the relationship between minor vision defects and educational attainment (Research Report No. 84). The second was a study of the educational effects of temporary hearing loss in Infant school children (Research Report No. 80). The latter was supported by a grant from the Commonwealth Schools Commission. Further studies are now in progress to clarify the curriculum needs of children with minor impairments.

2. Demonstrable effects on policy

- (i) Some important changes have been made to the vision and auditory screening programs in Tasmanian schools.
- (ii) A high-level Working Party, comprising members of the Health and Education Departments has been established. The group's task will be to establish a formal process of consultation aimed at improving communication between School Sisters and teachers; at identifying routine information which could be used for curriculum modification purposes and at improving resources and facilities for the School Health Service.

3. Awareness-raising activities

- (i) A seminar involving teachers, Guidance Officers, School Health staff, medical practitioners and research officers was held recently to discuss the implications of temporary hearing loss. Response was very favourable, particularly from the medical field.
- (ii) An additional grant was recently received from the Schools Commission to assist in the development of awareness-raising curriculum materials and in-service programs. Currently, brochures are being prepared to tell parents and teachers about temporary hearing loss.

4. Learning from the research process

This project represented an ambitious undertaking for the Research Branch. In addition to working with teachers, parents, children and administrators it also involved working with and drawing together a number of professional groups, each with a different perception of what the project was about. It involved working in areas outside the Branch's normal areas of expertise

and the use of skills that went beyond the conventional understanding of research skills. Looking at the research process as a whole indicates that there are several essential ingredients if a project of this nature is to be successful.

First, an enormous amount of energy and a lot of time is needed to sustain the momentum of the project - participants have to be kept informed and "on side" and the Committee has to be kept enthusiastic and active.

Secondly, the researcher must have a willingness and a capacity to appreciate the viewpoints of the different groups involved. This is vital, not simply as a means of gaining support for the project, but as a way of identifying the issues that need to be considered. In the case of this particular project, it meant becoming sensitive to the political context, particularly in the vision area. It meant becoming familiar with the territorial relationships that existed between various groups within the system. It meant learning a new language to be able to hold a sensible discussion with medical specialists. It meant acquiring enough basic knowledge across the whole spectrum of activities to be able to sift relevant from irrelevant information. Most importantly, it meant being able to take information from a variety of disparate sources and give it a new meaning by placing it in an educational context.

Another ingredient needed is the capacity to draw out the policy implications of the project as it progresses and feed them into the policy-making process in the Department. This was facilitated to a large extent by the use of a high-level management structure, but it also required familiarity with and access to the policy-makers within the Department and a conscious attempt to keep the project "visible", while it was in progress and, of course, once it was completed.

REFERENCES

1. Great Britain. Committee of Enquiry into the Education of Handicapped Children and Young People. (M. Warnock, Chairman) Special Educational Needs: Report of the Committee. London, H.M.S.O., 1978.
2. Keir, E. H. "Auditory information processing: implications for learning." Paper based in part on an article published in the Proceedings of the First Conference of the Audiological Society of Australia. Sept., 1974.