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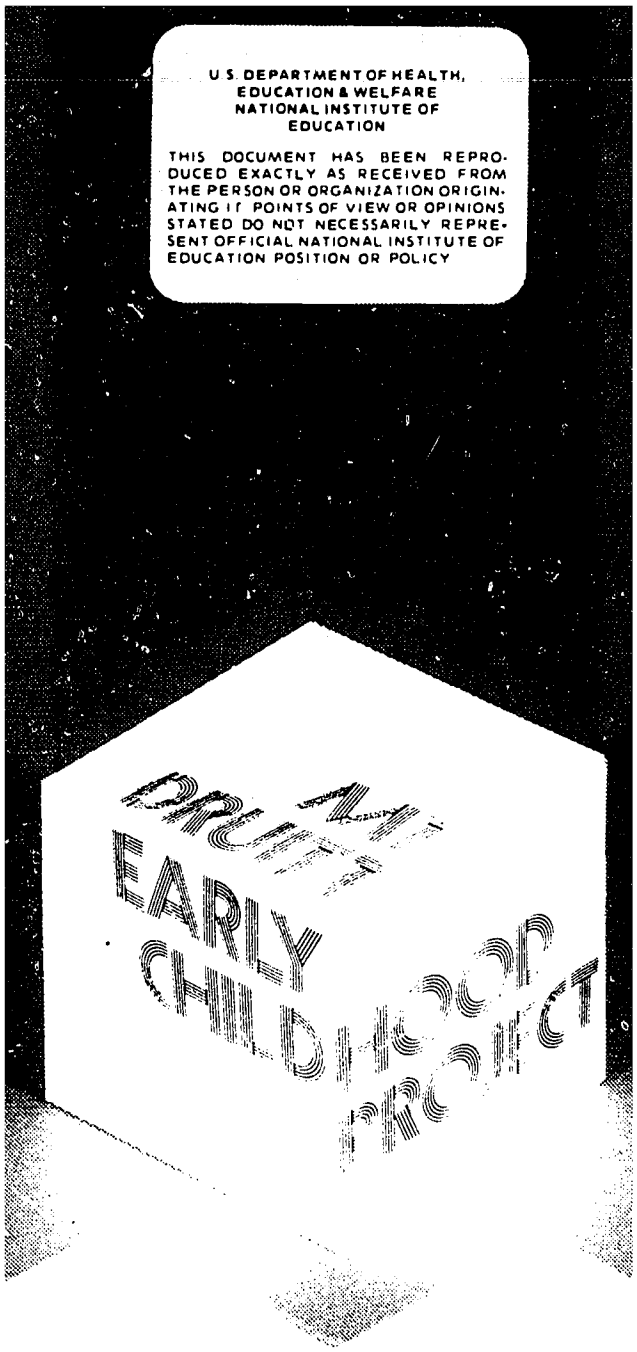
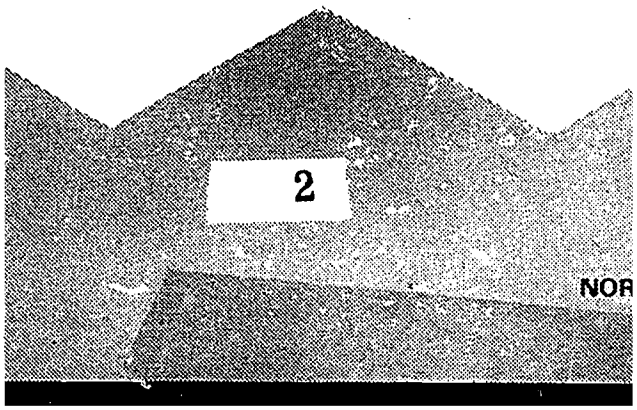
ABSTRACT

This plan for the longitudinal evaluation of a group of five different kinds of preschool programs involves a project conducted in a predominantly disadvantaged Australian community over the period 1975-79. Main project goals are (1) the determination of conditions under which particular preschool programs are most effective and (2) the evaluation of such programs. Involved are the development of four preschool programs and one home-based program, their implementation in the context of an Australian setting with a large proportion of disadvantaged children and the assessment of the various effects of these programs. The Mt. Druitt area near Sydney was chosen for its predominantly lower socio-economic status population with a large sub-population of preschool children. The five major types of programs represented emphasize, respectively: (1) behavior modification, (2) cognitive skills and structures, (3) competency orientation, (4) social and affective growth and (5) parent-child interactions in the one home-based program. Major comparisons to be conducted will be among the 5 program groups to determine initially the effects of different programs on specific groups of children. Subsequent comparisons will be made between the performance of those 5 groups during kindergarten and first grade and the performance of 4 comparison groups. Selection of measurement instruments is discussed, as well as statistical procedures to be used. (BF)



A WORKING EVALUATION DOCUMENT

by Samuel Bail and John Braithwaite



THE MT.DRUITT EARLY EDUCATION PROJECT

EVALUATION STUDY

A Working Document prepared

by Samuel Ball and John Braithwaite

1st August, 1976

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This paper was written as part of the overall planning associated with the Mt.Druitt Early Childhood Project. The research activities for this Project have been funded by the Bernard Van Leer Foundation.

1. INTRODUCTION: THE BACKGROUND TO MT.DRUITT

A) A RATIONALE FOR PRESCHOOL PROGRAMS

In the past decade the convergence of a number of social movements has forced educators to focus their attention more closely on preschool education. The eroding power of the family in Western societies has meant that it has lost some of its influence as an educational agent. Institutional forms of education have had to take up at least some of the functions once exercised by the family. As well, changing perceptions of the roles of women have meant that fewer subscribe to the life pattern in which they, when mothers of young children , spend large amounts of time (the child's waking hours) with their children.* The increasing proportion of young mothers in the full-time work force in industrial societies attests to this. Less time with the child means less opportunity to influence the child and greater need for beneficent agents and agencies to help care for and stimulate the child.

Still other movements have pressed for a new emphasis on preschool education. The increasing social and technological complexity of modern life has placed great demands on our education system to produce a more highly educated workforce. But our current education system has been less than fully successful in this as the recent emphases on remedial and compensatory education attest. Intersecting with this mandate for more education has been the argument based on the research of educational and developmental psychologists, that the preschool years are of prime importance for later learning.

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* In the 19th century Hopkins legendary log was still touted as a respectable venue for conducting higher education (with a professor at one end and a student at the other). Similarly and until more recent years mother's knee was the prized venue for preschool learning - but mother's knee might now be under a typewriter or beside a computer. In any case mother might consider a trained preschool teacher's knee a more appropriate venue for her child's learning.

As the argument goes, it is during the preschool years that basic social, cognitive and language skills are learned, and physical and emotional competencies established. Thus, it would seem to make sense, in the case of disadvantaged children especially, to intervene during the preschool years by providing some form of stimulating environment thereby presumably enhancing the child's growth, enabling the child better to meet the challenges of primary school, and augmenting the weakening roles of the family and the mother.

B) EDUCATIONAL BACKGROUND

Preschool education is not new. Jean Jacques Roussean romanticised the idea of providing the young child with a permissive childhood and a natural environment; Robert Raikes, founder of the Sunday School movement, argued that if children could be caught and taught early enough, delinquency could be reduced; and by the 19th century in Germany, Friedrich Froebel had developed the concept of, and a curriculum for the kindergarten (Infant Garden). Not surprisingly then, preschool education in Australia* was well underway by the start of this century, the Kindergarten Union having been established in July, 1896.

As is the case with many other practices in Australian education, overseas visitors and writings influenced developments in preschool education; and in spite of the relatively long history of preschool education in Australia, there has been little research conducted into the field by Australian academics or preschool teachers. To date the major thrust of research studies has been with programs for

* In the context of Australian education, preschool is for children of the age-range approximately 3yrs 9mths to 4yrs 8mths. Public schooling is available for children who are at least 4yrs 9mths at the beginning of a school term and education is mandatory for children 5-6 years of age. The first year in school is called kindergarten. Typically, formal education is not stressed in that year. The second year in school is called Year One and this is when formal academic schooling usually begins. These terms will be used in this paper when referring to Australian Education.

Aboriginal children such as those sponsored by the Van Leer Foundation or that of Moffitt and his co-workers.* Thus, there would appear to be a strong need to conduct further research in Australia on preschool education for disadvantaged children in settings differing from those previously studied.

In the development of preschool education, both here and abroad emphasis has been placed for the most part on anecdotal information, subjective judgment and, at times, metaphysical theory. While many excellent practices doubtless have arisen it is equally likely that many useless practices have been incorporated into the body of lore surrounding preschool education. Although a number of competing schools claimed to be able to provide the "best" kind of preschool experience, there was until quite recently virtually no empirically derived, scientifically-based information about the various effects of different types of preschool experience.

The studies that have been generated by Head Start**, Follow Through and other major programs in the U.S.A. have provided valuable background information for the Project. Comprehensive reviews of research published by Bronfenbrenner*** and White**** indicate that the findings generated from such programs are far from clear-cut. Indeed recently published studies in Britain***** reflect this uncertainty as to the effectiveness of intervention programs. However, there does appear to be a major re-orientation in the design of intervention approaches which augur well for the increasing effectiveness of these programs and it is believed that many of these reconsiderations are contained in the

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* e.g. Moffitt P., Nurcombe B., Passmore M. and McNeilly A. (1971) "Instrumentation in Cultural Deprivation: The Comparative Success of Preschool Techniques for Rural Aborigines and Europeans" *Australian Psychologist* Vol.6 No.1 pp 51-61.

**Head Start, begun in 1964 was intended as a comprehensive program including efforts to improve health and educational services for disadvantaged preschoolers.

***Bronfenbrenner U. (1974) *A Report on Longitudinal Evaluations of Preschool Programs. Vol.II Is Early Intervention Effective.* D.H.E.W.

**** White S.(1973). *Federal Programs for Young Children*,Cambridge: Huron Institute.

***** Halsey A.H. (ed.) (1972). *Educational Priority*, London: HMSO.

study plan set out in subsequent sections of this paper.

C) The Mt. Druitt Project

In the early 1970's Macquarie University School of Education proposed a research and development project in preschool education to take place in the Mt.Druitt area west of Sydney. This area was chosen for a number of reasons. It contains a predominantly lower socio/economic status population with a large sub-population of children of preschool age. It contains a disproportionate number of families requiring welfare assistance and its unemployment rate is about three times the national average. Thus, many of the preschoolers could be termed "disadvantaged"; and this was an important factor, for the proposal called for the study, especially, of the effects of programs on disadvantaged children.

By August,1974 a revised proposal was prepared to take into account the growing interest in and support for preschool education by the Australian Federal Government and the New South Wales Government. The revised proposal emphasised as two major project goals: determination of the conditions under which particular programs are most effective and the evaluation of those programs.

Five programs were selected for study.* They constituted a representation of major types of programs in the world of preschool education. The five programs were:

1. A behaviour modification program emphasising language learning.
2. A cognitive program emphasising the acquisition of cognitive skills and structures.
3. A competency-oriented program emphasising the growth of a positive self-concept as the child relates to school and learning.
4. A preschool program emphasising social and affective growth.
5. A home-based program emphasising the development of educative parent-child interactions.

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* A comprehensive description of these five programs (their goals, curriculum and methods of teaching) is presented in Appendix A.

Funding and assistance for the project involved the Children's Commission of the Australian Government and the N.S.W. Department of Education. The School of Education, Macquarie University was given a three year grant of $426,000 from the Bernard van Leer Foundation to cover all research activities associated with the Project. In addition, the N.S.W. Health Commission is co-operating with the Project in the collection and analysis of medical information associated with the Project.

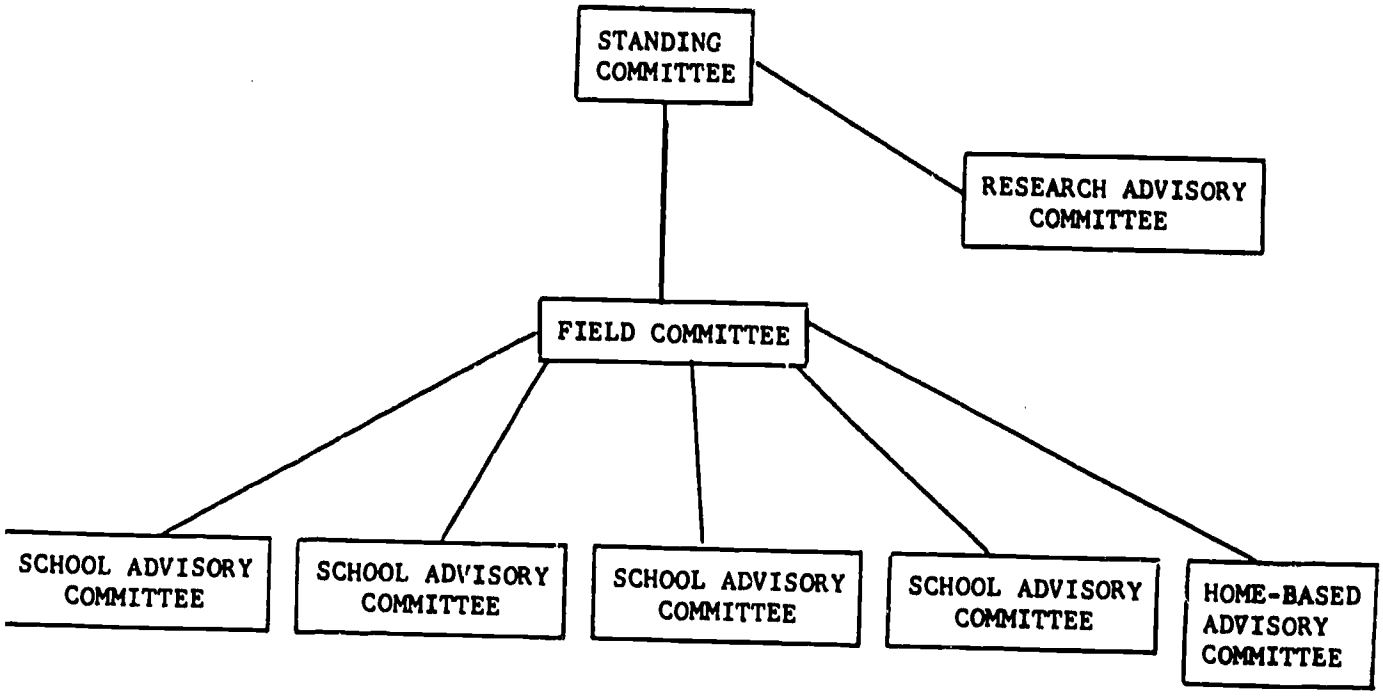
To administer the project a structure shown in Figure 1 was established. The Standing Committee was charged with the overall responsibility for the project and has representatives from the three participating bodies as its membership. The Field Committee representing the schools, parents and area education officers has as its responsibility the establishment and co-ordination of common practices at the district level. Each school's Advisory Committee meets to co-ordinate activities at each site. The Research Committee comprising people with a variety of discipline backgrounds from within the School of Education and outside the university acts as an advisory body to the Standing Committee.

Each of the four existing schools in the Mt.Druitt area became the site of a specific preschool program (numbers 1-4 above); appropriately designed buildings were built and materials purchased; twelve teachers (two per site and four for the home-based program (number 5 above) which covers all the four school catchment areas) were specially trained at Macquarie University's School of Education during the winter of 1975; and in September, 1975 a one-term try-out of the programs began.

The general plans for the following two years of the project are that in 1976 the programs will be developed and consolidated and the evaluation instrumentation tested; and in 1977 a full-scale evaluative research study* will be conducted. It should be noted that this is a

* The term "evaluative research" is used in the sense defined by E.A. Suchman: "...the utilisation of scientific research methods and techniques for making an evaluation". See Suchman E.A. *Evaluative Research: Principles and Practice in Public Research and Social Action Programs*. New York: Russell Sage Foundation, 1967.

FIGURE 1. ADMINISTRATIVE STRUCTURE OF MT. DRUITT EARLY CHILDHOOD PROJECT



departure from the original plan. Initially it was proposed to develop the programs and the evaluation design in 1975. This would have allowed 1976 to be the year to begin the full-scale evaluative research study. However, problems with respect to political considerations and class room construction caused delays and a change to the plans described above.

In the following pages the evaluation study plans for the period from September, 1975 to December, 1977 will be presented along with some projected follow-up activities that should be conducted after 1977.

11. THE EVALUATION GOALS

The role of any evaluation is to provide information useful for decision-making. The Mt.Druitt project is complex. It involves the development of four preschool programs and a home-based program (for families with preschoolers), their implementation in the context of an Australian setting that has a large proportion of disadvantaged children, and the assessment of the various effects of these programs. The overall objective of the Mt.Druitt evaluation is to enable decisions concerning the programs' development, their efficient operation and their subsequent adoption to be based on sound empirical evidence. This can be articulated into four overall goals:

OG1: To specify overall, and separately for different kinds of children, the short-term and long-term, intended and unintended effects on pupils, family and school of the five programs.

OG2: To contribute to the understanding of basic processes in the growth and development of young children. This understanding may relate to educational, medical, psychological and sociological disciplines including understanding better the processes of educational evaluation itself.

OG3: To describe the processes that occur within each of the five specified programs when functioning as intended.

OG4: To specify what administrative, fiscal and educational steps have to be taken in order to ensure the effective functioning of the five specified programs.

These four overall evaluation goals are the keystones of the evaluation plan.

a) The first overall evaluation goal (OG1) is the nub of the Mt.Druitt project, It embodies explicitly or implicitly the major evaluation principles underlying the summative aspect of the evaluation. Three principles made explicit are:

a. Trait-treatment interactions are likely to occur in educational interventions. That is, the same program might be beneficial for some students and deleterious or neutral to others. Therefore, it is important for evaluation plans and subsequent analyses not only to investigate the effects of the program across all pupils in the program but also to investigate effects across specified subgroups. In practice the preliminary plan for the Mt.Druitt project is to investigate program effects for different groups of children - for example, morning vs. afternoon students and for boys vs. girls. The effects of age, socio-economic status,* and language spoken in the home** will also be looked at to see whether they interact with the effects of a given program.

b. Both short-term and long-term effects should be studied. Previous research in the USA suggests that the effects of preschool education are relatively short-lived, but that the way the preschool program meshes with subsequent educational processes might enable the effects to be prolonged and built upon. Thus, the Mt.Druitt evaluation will be extended to cover the effects of the five programs at least through the first two years of schooling. Experience with the Follow Through program in the USA suggests that these early years in school mediate the effectiveness of earlier programs and so the processes occurring in those years will be closely studied in this investigation.

c. It is not sufficient to assess whether the intended effects of a program are being achieved. Unintended outcomes, both positive and negative may be even more important. For example a program may fail to achieve its objectives of enhancing the social development of the children - but those children may be contagiously enthusiastic about school as a result of their experiences so that they achieve better in their academic subjects and continue in school longer. Or perhaps a program is achieving its intended objectives of enhancing reading readiness, but there are negative unintended outcomes - the children

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* SES will be defined both in terms of static variables (e.g. father's occupation, parental level of education) and dynamic variables (e.g. frequency of trips outside community, amount of time spent reading to the child, etc.)

** From English only, through various levels of bilingualism, to where English is not spoken in the home.

become very passive in school and learn only in highly structured lessons. Medical research ethics demand that new drugs and therapy programs should look most carefully for "side effects". We in social and educational research and evaluation should be no less careful. In order to ensure that both intended and unintended outcomes are assessed in the Mt.Druitt project, a wide range of measures will be administered, covering all major domains. These measures, assessing child, teacher and family are outlined in a later section of this report.

As well as the principles of evaluation made explicit in the first overall goal of the Mt.Druitt study there are two implicit principles which should be mentioned now. One is that major data analyses should be multivariate. When investigating complex phenomena less sophisticated analyses are likely to represent oversimplifications of reality. In this study there will not only be a large array of measures on children, teachers, family and classroom but there will also be repeated measures over time since this is a longitudinal study. Analyses must look for trends and developments. This would not be possible with a cross-sectional design.

Also implicit in the foregoing discussion is the necessity for a multidisciplinary team approach to the study. The detailed plans to be outlined below will need for their implementation the attention of experts in early childhood education, medical services, sociology, economics, developmental psychology, program evaluation, computer programming, statistics, psychometrics, data management, educational administration and public relations. Very few people have expertise in all these areas and it would be realistic to plan a team approach with clear lines of communication among the team members. This approach has been planned for (see Section VI Project Administration below).

The data collection for OG1 will take place in 1977 and in subsequent years, at least until 1980.

b) The second of the overall evaluation goals of the Mt.Druitt study (0G2) takes cognizance of the fact that a wealth of data relating to the growth and development of young children will be generated. While analyses of these data will be carried out to provide information for decision-makers (the evaluative function), it will also be desirable to examine the data for more general research purposes. Thus, as well as learning a great deal about the five programs and how they function we shall also be learning a great deal about the children and the inter-relatedness of such factors as their health, learning processes and family background. To facilitate these research studies, the data will be made available to qualified postgraduate students and other researchers on an individual request basis.

c) The third overall goal (0G3) calls for a thorough and comprehensive description of the processes that occur in each of the programs when those programs are in full operation. These descriptions will be useful in at least three ways. They will enable educators to use a given Mt.Druitt program as a model for a program in some other district. It is expected that Mt.Druitt will become a focal point for any administrator wishing to set up programs (either in schools or home-based) for preschool-aged children. It will be essential that clear and comprehensive descriptions of the five Mt.Druitt programs be available, not necessarily so they will be copied slavishly but as a model to be adapted to conditions existing in other districts. The descriptions of programs will also enable researchers to replicate all or part of the Mt.Druitt study; for only if the "treatments" are clearly described in the first place can they be subsequently repeated. And third, they will enable educated guesses to be made, linking the effects of the programs to specific elements in those programs. For example, if the behaviour modification program were to have considerable impact in the reading readiness area (much greater impact than the other programs had in that area) it would be useful to look at the kind of prereading activities conducted and the percentage of time spent on these activities. Of course; the linkages so noted would be of the

"educated guess" kind of speculation; but as such, they are useful in guiding others to develop follow-up studies that will make the causal link clearer and they serve in the meantime as useful interim evidence about the effects of program components. The descriptive data will be collected mainly during 1977.

d) The last goal (OG4) mandates the formative evaluation activities which are, of course, a necessary precursor to the major study. These formative evaluation activities (e.g. finding songs that work best to activate children in rhythm lessons, trying out three kinds of verbal reinforcement to see which one is most potent) will be carried on separately in the context of each program and the intent is to ensure each program operates efficiently and along the lines appropriate for that program. Formative activities will occur primarily in 1975 and 1976.

e) As well as the four overall project evaluation goals specified and discussed above, there are other evaluation goals whose achievement is important. These can be grouped into the context and cost areas.

The context goals are an elaboration of the third overall goal OG3 (see above). This goal has been presented here in greater elaboration to emphasise that the processes to be described are more than the classroom interaction processes and that the information to be made available will have utility to a wide spectrum of professionals.

CONTEXT 1. To provide evidence useful to educational, medical and social welfare executives on the kinds of policies and practices in the administrative, personnel, physical plant and public relations areas that are most conducive to the implementation of preschool and home-based programs.

CONTEXT 2. To provide evidence useful to preschool administrators concerning methods of pupil recruitment, placement and evaluation and classroom maintenance.

CONTEXT 3. To provide evidence useful to professionals in early childhood education covering methods of teacher and teacher-aide selection, training, placement and evaluation.

CONTEXT 4. To provide evidence useful to curriculum and program developers in medical, social work and other related professions on appropriate topics to be covered when focusing on disadvantaged preschoolers.

The cost goals can be specified as:

COST 1. To provide assessments of the absolute costs of running each of the five programs.

COST 2. To present a cost effectiveness (but not cost benefit) study of the five preschool programs.

The absolute cost data will be useful for those contemplating the establishment of other preschool programs. The cost effectiveness study will be especially useful in considering home-based and school-based programs.

111. THE STUDY DESIGN

The design to be described here covers the period September, 1975 to December, 1977 (the currently funded phase of the study), and then projects onwards until December, 1979. At that time, the major cohort being studied (the five treatment groups entering programs in February, 1977) will have finished first grade (Year One), thereby substantially satisfying the need to provide long-term, follow-up data.

Figure 2 provides a graphic layout of the study plan across the years 1975 to 1979. It can be seen that as well as the five EX groups, each undergoing a different program, there will also be four comparison (control) groups. To understand the nature of these comparison groups (C1 - C4) an elaboration of the logistics of the study is necessary.

Each of the four school-based programs is situated in a different school in the Mt.Druitt area. None of the four programs or the parallel home-based program will be able to enrol all the children of a given age group who will the following year be attending that school.* Thus, after the programs get underway there will be children entering kindergarten who have gone to the preschool program and some who have not. Those who could have gone to preschool, but did not during the major data collection year for the summative evaluation (1977) are represented on Figure 2 as C4. As a single comparison group it would be inadequate because parental selection has occurred. That is, there are probably systematic result-biasing reasons why some parents send their children to preschool and others do not. Comparability within the EX groups can be expected because of the homogeneity of the

* In each of the four school-based programs there will be 40 morning pupils and 40 afternoon pupils. (N=80 per program per year). In the home-based program there will be a maximum of 60 families involved. The children who attend preschool will constitute about 50 per cent of the kindergarten classes in the school with large kindergarten intakes and up to 80 percent of the kindergarten class in the school with the smallest kindergarten intake.

GROUPS	YEARS				
	1975 (One term)	1976	1977	1978	1979
C1	Nov(K)	Feb-Nov(1stG)			
C2		Feb-Nov(K)	Feb-Nov(1stG)		
C3			Feb-Nov(K)	Feb-Nov(1stG)	
EX1			Feb-June-Nov(PS)	Feb-Nov(K)	Feb-Nov(1st
EX2			Feb-June-Nov(PS)	Feb-Nov(K)	Feb-Nov(1st
EX3			Feb-June-Nov(PS)	Feb-Nov(K)	Feb-Nov(1st
EX4			Feb-June-Nov(PS)	Feb-Nov(K)	Feb-Nov(1st
EX5			Feb-June-Nov(PS)	Feb-Nov(K)	Feb-Nov(1st
C4				Feb-Nov(K)	Feb-Nov(1st

PS, K, 1stG = Preschool, kindergarten and Year One

Feb, June, Nov. = Months when major assessments occur

C1 - C3 = Major comparison groups (pre Preschool cohort)

C4 = Major comparison groups (concurrent with preschool cohort)

EX1 - EX5 = Five groups from the five programs.

FIGURE 2. Experimental and comparison groups indicating the periods of thei major assessments.

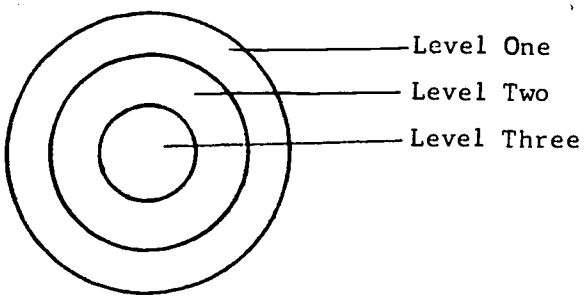
catchment areas for the four Mt.Druitt schools participating in the study. But statistically speaking, comparability between the EX groups on the one hand and the C4 group on the other cannot be expected because of the parental-selection (non-randomisation) problem.

In order to assess the size of the problem and to enable statistically-appropriate adjustments to be made, comparison groups C1, C2 and C3 have also been included in the study design. C1 is the group entering kindergarten in 1975. None of the group's members could have had experience in the Mt.Druitt preschool programs which were not in existence during their preschool years. Unfortunately C1 was not tested at the beginning of 1975. However, it will be tested at the end of the kindergarten year. Comparison group C2 enters kindergarten in 1976. Some of the members of C2 will have had one term's experience because the preschool program begins in the last term of 1975. Comparison group C3 will have members who had a full year of preschool (as in C4). By comparing scores* within the C1 - C4 groups and between the C1 - C4 groups a relatively precise estimate of the entering school scores of Mt.Druitt children before the preschool programs and after the preschool programs will be obtained within each of the four schools offering the programs. Also, the data from the C groups provide very useful data about how disadvantaged children fare in school without special intervention.

Sampling Restrictions

Because of the number and variety of instruments being used to investigate all the variables in the study it would be impossible in either economic or manpower terms to test every child in every preschool on every measure. Therefore, it is proposed to conduct the testing at three levels taking into consideration that there must be a sufficiently large sample at all levels to ensure firstly that statistical requirements are satisfied with testing for significant differences and secondly that there is some reliability concerning our results, especially as son many of the instruments intended for use have only medium reliability factors. The design can be represented diagrammatically as follows:

* The scores will be obtained from tests specified in the following section of this document.



where level one measures apply to all children, teachers and school situations. Level two applies to some children, teachers and school situations and level three applies to only a very small group in the same areas.

The major comparisons to be conducted will be among the five program groups (EX1 - EX5) to see initially which kind of program has what different effects on specified groups of children. Subsequently comparisons will be made between the performance of those five groups during kindergarten and first grade and the performance of the comparison groups.

It should be noted that the study design purposely is based on the realities of the real world situation. The chosen evaluation design is quasi-experimental approximating the time-series design described by Campbell and Stanley* with the added attraction of comparison groups which do not receive the treatment. It will enable the evaluation objectives to be achieved without recourse to experimental artificiality.

A "true experiment" in the technical, Campbell and Stanley sense, could have been conducted if children had been bussed outside their local areas and parents cajoled or persuaded to allow the experimenter to randomly assign the child to a preschool program or to no preschool program (depending on the randomisation process). The advantage of that approach would have been that an apparent degree of precision would have been added to the evidence obtained from the study. But that degree of precision would have been more apparent than real. The ability to generalise the results from this study to subsequent educational interventions would have been seriously jeopardised.

Finally note that the proposed evaluation design is practical. It allows sufficient time (1976) to establish programs (formative evaluation phase) and to develop and try out the measuring instruments for the major study.

* Campbell, D. T. and Stanley, Q. C., (1963). Experimental and Quasi-experimental designs for research on teaching. In N.L. Gage (Ed.), *Handbook of Research on Teaching,* Chicago: Rand McNally, pp. 171-246.

IV. MEASURES

The problem in planning the measurement components of an evaluation is almost always one of having to select from among a distressingly large number of often inappropriate instruments. Potentially, there are tests (paper and pencil), situational tests, questionnaires, logs, interviews, records, physical traces, social indicators, ratings, observations and clinical or physical examinations. The source of the information can be the evaluator, the pupils, the pupils' peers, teachers, aides, administrators, parents, observers and clinicians. Neither of these listings should be considered to be exhaustive.

The first task in developing decisions on measures is to determine the areas in which assessment should take place. In the Mt.Druitt study these include assessments of the:

1. Program
2. Classroom
3. Teacher
4. Aide
5. Pupil
6. Parent
7. Home background.

Within these areas there are specific domains of interest. This can be illustrated with respect to the assessments of pupils (#5). The domains for pupils are: attitudinal, affective, cognitive, language, perceptual-motor, school achievements, social and health/medical.

From within these domains of interest it is then necessary to select or develop tests that meet standards based on the set of criteria to be presented below. In terms of the Mt.Druitt evaluation it would be unprofitable to set out all the discussions and considerations that occurred in deciding on the measures to be used. However, the criteria considered can and should be presented:

1. Specificity and Relevance. Within each area of interest the measure most sensitive to assessing the specific variable of concern was chosen. For example in the area of the child's cognition a few specific tests of processes such as identifying sequence, recognition of incongruities, ability to classify on the basis of a single criterion (etc.) were chosen in preference to a more general test of "intelligence" which assesses variables not related to the programs and which provides an overall index with a vague referent. Relevance refers to the degree to which a measure assesses a variable that at least one program is attempting to influence. A measure of sharing or co-operation (goals of the social/affective program) was preferred to a measure of peer social popularity (not a goal of any of the programs).

2. Availability. Other things being equal, a measuring instrument already available, especially if it had been used in Australia, was preferred over one in need of development. The reasons are many and obvious and include savings in cost and effort and opportunity to compare Mt.Druitt data with data from other studies which used that instrument.

3. Psychometric Properties. Whatever the variable of concern or the measurement technique, professionally sound psychometric properties were deemed essential. For example, a test of motivation with low test-retest reliability was rejected, as was a measure of general knowledge which had too low a ceiling for kindergarten children.

4. Ease of Administration. Tests that could be quickly and conveniently administered without considerable training of testers were preferred. Most of the tests chosen to be administered to children are group tests. A few of the tests specified are in the limited availability ("restricted use") category. Such tests will be administered only by qualified personnel.

5. Ease of Scoring. Tests that could be routinely scored, or better still, machine scored were preferred over those requiring clinical judgments, coding procedures, or other complicated processes.

6. "Triangulation". In some areas no single measure was considered a sufficient assessment. In such cases and when practicable, more than one measurement technique was chosen to assess a given variable. For example, a child's level of social development will be assessed partly through observation by trained observers of free-play behaviour of the child in the school setting. As well the teacher will be asked to describe and rate the child on a number of criteria relevant to social development, and, by interview, parents of the child will be asked questions also relevant to social development, but in the context of the family unit. Three different kinds of assessment of the one construct should provide more accurate, better proportioned picture than any one measure.

Table 1 presents the instruments to be used in the Mt.Druitt project along with the kinds of information (variables) to be assessed, how frequently the measure will be administered/collected, the current state of development of the instrument and by when it shall be made ready. In examining this table consider the fact that for any given preschool program some of the dependent measures will assess intended outcomes while others will assess unintended outcomes. Which assess intended outcomes and which assess unintended outcomes depends on the program under consideration. By stipulating that children, no matter which program they attend, are administered all the child measures, we assure that unintended outcomes are taken into active consideration.

The purposes to which the data from these measures will be put are varied. Some will be used for descriptive purposes. (What went on in the program?). Some will be used as moderator variables. (Do lower SES levels gain relatively more in one program than other?). And even

more obviously, some will be used as dependent variables. (What is the status of the children at the end of the program period with respect to their scores on the Memory Test and the ITPA?). What is not so obvious is that a given measure may well be used for more than one purpose. The content analyses of video tapes can be used to describe programs (e.g. to assess classroom climate) or to provide a dependent measure (e.g. in what programs are children asking the most or least number of questions). Similarly, a child's language ability might be a moderator variable in one analysis (to see if children with lower levels of language ability gained from the program) or as a dependent variable in another analysis (to see if children in program EX1 perform differently in the language domain from children in the other programs). All the uses of the measures cannot be spelled out at this stage. Prime uses of the measures have been thought out and the opportunity for the same measure to be put to different uses will be actively considered throughout the project.

One problem that arises from a consideration of Table 1 is that the time to test a given child on all the measures involving that child is rather long. However, Table 1 presents the candidate list of measures and a few may be dropped as a result of experiences obtained in 1976 as the test battery development takes place.* As well, the Circus tests which predominate in the battery have been put together so that they are fun for the children being tested. The tests could be administered easily over a period of one week. The main alternative to extensive testing is to measure less, but this alternative has been rejected. To conduct such a large-scale innovation in preschool education and not to assess thoroughly background, independent, context, treatment and dependent (outcome) variables would be quite imprudent.

* One possibility to be further investigated is that the full battery of instruments be administered to the children only twice (pretest in February and posttest in November). The June testing could then be a partial administration in which either a small sample of the children in each program are tested or all the children are tested on a small sample of the full test battery.

TABLE 1.

INSTRUMENTS TO BE USED IN THE MT. DRUITT EVALUATION

INSTRUMENTATION	VARIABLE	HOW OFTEN	WHO DESIGNS	STAGE OF DEVELOPMENT
A. Daily Plan (Teacher)	Description of procedures and plans	Daily	Teachers and Aides	Continuing
B. Teacher logs and Teacher's aide logs	a) Evaluative views of program - successes - failures b) Context of program (physical, admin., other teachers, etc.) c) Nature of interaction with parents	Weekly	Teachers and Staff	1st Ed. '75 2nd Ed. Jan. '76
C. Program Assistant Logs	School Administration and staff reaction Teacher performance Context of program Aide performance Program characteristics and peculiarities Community data - anecdotes Relationships with other agencies	Weekly	Staff	Complete
D. Parent interviews				
1. Parent Behaviour Inventory	Ratings by main caretaker of how she sees her child's behaviour	Beginning & end of year	Staff	Draft

INSTRUMENTATION	VARIABLE	HOW OFTEN	WHO DESIGNS	STAGE OF DEVELOPMENT
D. (Cont'd.)				
2. Parents' Expectations of Preschool	Defining role parents feel preschool should fulfil	Beginning & end of year	Staff	Draft
3. Reasons for Preschool Enrolment (mother's viewpoint)	Parents' reasons for enrolling child - from parents' point of view	Once - at beginning of enrolment	Staff	Draft
4. Reasons for Preschool Enrolment (child's viewpoint)	Parents' reasons for enrolling child - from child's point of view	Once - at beginning of enrolment	Staff	Draft
5. Admission information from parent				
i) agreement form	Agreement to allow child to participate in study	On enrolment	Staff	Complete
ii) personal information form	Information re Socio-economic Status, housing, educational background, etc.	On enrolment	Staff	Pilot
6. Mother, Children and Facilities	Ratings of Social Environment in which families live	Once - at entry into program	Staff	Pilot
E. Personnel Information and Administrative Information	Experience and background of all teachers and aides	At hiring	Staff	Complete
	Child attendance (from school rolls)	As required	Staff	Continuous
	Financial records	As required		

INSTRUMENTATION	VARIABLE	HOW OFTEN	WHO DESIGNS	STAGE OF DEVELOPMENT
F. POS Ratings of Pupils (by teachers)	Status re Creativity Attitudes Social behaviour Emotional behaviour Cognitive behaviour Language Perceptual/Motor	Once in each of March) April) July) August) November) December)	Staff	Pilot
G. 8-Block Sorting task	Parent/child interaction (25% sample) Pattern communication between mother and child	Twice yearly	Hess & Shipman	Complete
H. Baseline Data				
1. Kindergarten Baseline child measures	Murphy-Durrell Reading Readiness Analysis (selected sections)	Once	Various	Complete
	Boehm test of Basic Concepts	Once	Various	Complete
2. First Grade Baseline data	Reading - ACER Individual Reading Test	Once - in early '76	Various	Complete
	Spelling - Schonell	"	Various	Complete
	Arithmetic	"	Staff	Complete
I. Physical/ Medical Examination	Medical history Birth problems Haemoglobin Height and weight Perceptual acuity	Once - in second term	Staff and medical officers	Complete
J. Process Observations				
1. PROSE	Interaction analysis of preschool classrooms	Continuous	Adapted from Medley by staff	Pilot

INSTRUMENTATION	VARIABLE	HOW OFTEN	WHO DESIGNS	STAGE OF DEVELOPMENT
J. (Cont'd.)				
2. Monitoring	Program monitoring by experts	Monthly towards end of '76 3 x year in '77		Pilot
3. Commentary	Observer's subjective ratings	3 x year in '77	Observers	Complete
K. Attitude to school and Self concept scale	Attitudes to school-related activites Child's attitude to self		Staff adaptation of Sesame Street Attitude Scale	
L. School Achievement Measures				
1. Mathematical concepts	Enumeration, one-to-one correspondence, ordination comparison, etc.	Twice a year in '77	Staff	Pilot
2. Visual Discrimination	Letter and numeral recognition and discrimination	Twice a year in '77	Staff	Pilot
3. Auditory Discrimination	Auditory discrimination	Twice a year in '77	Staff	Pilot
4. General Information (Circus No. 11)	Knowledge about health, safety, physical and social environment	Twice a year in '77	Available	Pilot
M. Preschool inventory (Caldwell)	Various problem solving and cognitive tasks	At beginning and end of year	Modified by staff	Pilot
N. Denver Developmental Screening Test	Perceptual motor and language development	Once in '77	Available	Complete

INSTRUMENTATION	VARIABLE	HOW OFTEN	WHO DESIGNS	STAGE OF DEVELOPMENT
O. Language Measures				
1. Circus 1 (what words mean)	Receptive vocabulary	Twice a year in '77	Modified by staff	Pilot
2. Frazer, Brown & Bellugi - Test of Grammatical Contrasts	Basic syntax measure using techniques of imitation, comprehension and production	Twice a year in '77	Modified by staff	Pilot
3. Northwest Syntax Screening Test	Measures same variables as Frazer, Brown & Bellugi, above - using similar tasks	Twice a year in '77	Modified by staff	Pilot
4. Say and Tell (Circus no. 10)	Productive language - telling a story based on a picture	Twice a year in '77	Available	Pilot
P. Macarthy Developmental Scales	Tests of general cognitive functioning administered to school and non-school sample	Once - in '77	Available	Complete
Q. Bruner & Piaget tests	Cognitive functioning (process and product)	Three times yearly	Available	Pilot
R. Videotapes of semi-structured family situations	Family climate. Parent teaching strategies. Motivating styles	Twice yearly	Staff	Pilot
S. Videotapes of classrooms	Classroom climate. Intensive use of Stallings, for example, vs other interaction analytic techniques	Three times yearly	Lesson types to be designed by staff	Pilot

INSTRUMENTATION	VARIABLE	HOW OFTEN	WHO DESIGNS	STAGE OF DEVELOPMENT
T. Homebase Program Instruments				
1. Teacher Observation Sheet	To measure parent and child interaction during home visiting sessions (using some PROSE categories plus others)	Monthly	Staff	Pilot
2. Preschool - Parents Self Concept Scale	A measure of parents' attitudes towards themselves in relation to the goals of the home-base program	Twice - on enrolling (Pre) and leaving (Post)	Staff	Pilot
3. Parent as a Teacher Profile	Impressions of the way in which parents are coping with their children (developed from Strom)	Three times per year in '77	Staff	Pilot

V. ANALYSES

This large-scale longitudinal evaluation involving many different kinds of measures with various psychometric properties is going to require a wide variety of statistical procedures. Here is an incomplete unsystematic sampling:

a) Distributions of responses and other item-level analysis details for test development or test adaptation purposes.

b) Chi-square analyses of parent responses at pretest and posttest on interview items designed to investigate changes in the educational component of family behaviours.

c) Regression analyses of pretest on posttest of comparison groups C2, C3 and C4 with a view to developing a set of predicted scores for C1 at pretest.

d) Johnson-Neyman technique where the difference between the treatment groups is not statistically significant but it is suspected that differences between subgroups may be significant.

e) Multivariate analysis of covariance to establish whether differences exist among mean gains of the pupils in the five program groups and we wish to covary pretest levels for greater precision in interpretation.

f) Factor analysis to establish whether it would be reasonable to reduce the number of scores being entered into some analysis or to establish whether the factor structures of children's scores in one program differ markedly from the structures of children's scores in another program.

At this point it is not possible to specify a complete set of statistical analyses. Much depends on the psychometric properties of the tests finally adopted for a given study. It maybe, for example that with some of the child measures related to school achievement, a test performs as a criterion-referenced mastery test. In that case, nonparametric analyses might be called for (e.g. to see if the proportion possessing mastery on that test differs from program to program). Or, it may be that the children in one program are seen to be systematically different from those in the other programs. In that case it might be necessary to exclude that group from some of the multivariate analyses. Nonetheless, a general strategy can be presented. The intent is to first carry out all analyses necessary to establish the properties of the instruments in a given study. Then extensive, overall analyses will be preferred to

provide, as it were, a "hunting licence". If significant results are noted, appropriate lower-level univariate analyses will be undertaken. As well, in each general area of study descriptive data will be generated. They will sometimes be generated in graphic form. Total reliance on planned inferential analyses is unwise; it is often possible to discern useful avenues of enquiry by "eyeballing" descriptive layouts of data. There is good reason for optimism that the kinds of analytic procedures alluded to here can be carried out successfull; for they have been carried out successfully in the past on projects of similar size, *The Sesame Street* evaluation (Ball), the Planned Variation in Headstart and Follow Through (Bissell) and the longitudinal study of disadvantaged children (Shipman) are examples.*

With a longitudinal study of this nature the problem of attrition, i.e., loss of children from the study, must be taken into consideration. Failure to take account of the differences in the number and kinds of dropouts in groups that are to be compared represents a major source of error in conclusions about the effects of educational treatments.** For if the final sample of children followed through a study is smaller than the initial sample and if the dropouts are different in some significant way from the remainder then the internal and external validity of the study is in question. For example, if the dropouts in all groups are similar to each other and the remainder then attrition is not a threat. If, however, the dropouts are similar to each other but are not representative of the remainder then the external validity of the study is weakened. Similarly, if the dropouts are not representative of the remaining children as well as not being similar to one another both the internal validity and external validity of the study could be in question. These factors must be considered in the experimental design phase and in the analysis of any measures collected.

A research advisory committee will include highly qualified statisticians who will be particularly engaged as consultants for the analysis phase of the Mt. Druitt study (See Figure 1).

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* See Stanley, J.C. (Ed.) (1973) *Compensatory Education for Children Ages 2 to 8.* John Hopkins Press, Baltimore.

** See St. Pierre, R.G. and Proper, E.C., "Attrition: Identification and Exploration in the National Follow Through Evaluation". Presented at Annual Meeting of the American Educational Research Association at San Francisco, 22 April, 1976.

VI. PROJECT ADMINISTRATION: FIELD OPERATIONS AND DATA MANAGEMENT.

The most brilliantly conceived study design and the most sensitively developed measuring instruments and the most sophisticated statistical analyses would be as valuable as a sun dial at the South Pole (in June) if the field operations are maladministered or the data mismanaged. Field operations should be tightly structured so that measures are administered when and as intended. Data should be so managed that quality control can be taken for granted; computer files should be developed skilfully and expeditiously so that data from pupils, classes, parents, (etc.) can be economically mixed and matched as required by the analyses. How can these obviously desirable states be attained within the Mt.Druitt project?

One cluster of important factors concerns the clear specification of evaluation-related roles and the provision of an environment in which those roles can be properly played. In Mt.Druitt each program will have at least two teachers, two aides, and a program assistant. As well as their program-specific duties they have responsibilities that bear directly on the evaluation process. Filling in logs, reports, ratings, and administering tests are all functions that will require their attention. Since some of these functions cannot be adequately carried out while classes are in session or while the home-based program is in operation, it is proposed that on one day each four working weeks they will be freed from regular duties.

This availability of the teaching staff on a systematic basis can be used to ensure that another necessary feature of efficient field operations is built in. The need for staff communication both horizontally and vertically (two-way, up and down the evaluation hierarchy) is clear. Data collectors should have rationales for their work. It not only is a morale booster but it also ensures that data

collectors will react properly when crises or unexpected events occur. The leadership should be available to the staff on a regular basis so that the leadership can be informed first hand of problems. Solutions or procedures developed in one program should be quickly shared with others. Therefore, it is proposed that the monthly meetings mentioned in the previous paragraph will function both to provide staff with time to provide data and to provide full project staff meetings.

A further important factor in ensuring proper field operations is to have one person who is fully committed to this task. One of the two project research assistants will be charged. Similarly, the second project research assistant will be charged with the responsibility of data management. That person will not have to design the computer system to handle the massive data of this longitudinal study (a full-time, experienced programmer with the help of a systems analyst will be employed for that purpose). However, the job will require an almost obsessive concern for detail with respect to logging in data, visually inspecting it for quality features (e.g. absence of blanks in interviews), requiring full computer edit runs and keypunch (or keytape) verification, and interpreting and scheduling the statistical analyses in co-operation with the programming staff.

Among the two research assistants, the programming staff and the senior project staff there should be close and continuing communication. A weekly staff meeting of these central staff members will be considered a minimal requirement.

Of course many more processes will be instituted to ensure that field operations proceed smoothly and that data are efficiently managed. The major purpose here, however, is not to present all the details but to map out some major strategies and to emphasize strongly that these matters are regarded as being of crucial importance.

V11. TIMETABLE

FIGURE 3.

TEST TYPE	1975 S O N D	1976 J F M A M J J A S O N D	1977 J F M A M J J A S O N D	1978 J F M A M J J A S O N D
1. Administrative Information	X X	X X	X X	X X
2. Medical/Physical Examination	→	X X X X	X X X X	X X X X (and 1st term'79)
3. Teacher Logs	→	X X X X X X X X X X	X X X X X X X X X X	
4. Program Assistant & Mother Logs	→	X X X X X X X X X X	X X X X X X X X X X	
5. Ratings by teachers of pupils & parents	0 0 →	X X X X X X	X X X X X X	X X (and in Nov.'78 and Feb. & Nov.'79)
6. Parent interview	→	0 0 → 0 0	X X X X	
7. Baseline data	→ X X	X X X X	X X X X	X X (and in Nov.'78 and Feb.& Nov.'79)
8. Process Information	→	X X X X X X X X X X	X X X X X X X X X X	
9. Preschool evaluation measures	→	0 0 0 0 →	X X X X X X	
10. Videotapings	→	0 0 0 0 0 →	X X X X X X	X X X X

X X X = Administration of measure
0 0 0 = Pilot testing of instrument
→ = Instrument development/adaptation

APPENDIX A

The Five Preschool Programs:

Their goals, curriculum and methods of teaching.

THE CONTEMPORARY AUSTRALIAN APPROACH

> "A goodly proportion of nursery school philosophy is conveyed by the belief that young children should enjoy a learning environment as free as possible from restraint and direction. Respect for and accommodation to individuality are essential."[1]

The contemporary Australian Approach is being developed from the mainstream of pre-school theories, principles and practices; and the assumptions that this tradition has made about education for children of this age group. The programme is child centred, based on the maturationist tradition, which stresses the need for the child to act independently on innate motivations arising from basic needs. Consequently, the model provides substantial periods of time during which the child is self-directing; selects and relinquishes materials at will; and is encouraged to use materials in imaginative ways.

Active discovery is seen as being an essential component of the model, since this is the means through which the child can achieve a positive self image of himself as a person and as a learner. Therefore, a learning context conducive to social emotional development has top priority. Once the child has formed stable emotional relations with the people around him, learning can begin to occur. Play is seen as the mediator through which the child learns for himself about reality, and also learns cooperative behaviour through participating in games with groups.

The aims of the contemporary Australian approach are therefore associated with the development of the whole child, and fall into basic developmental areas:

(i) Emotional
(ii) Physical and Motor
(iii) Social
(iv) Language
(v) Cognitive

The sequence of these objectives represents rapidly decreasing importance in the concern and interests of a traditional pre-school.

The Role of the Teacher

Teachers usually assume responsibility for guiding music activities and informal discussion times, but the most apparent evidence of planning and organisation is represented by the teacher's selection of play equipment and the creation of activity centres. The teacher's role in interaction with the children is seen as supportive to the children's interests, and promotion, through a personalised rapport, self-confidence, security and spontaneity in the child.

The child's functioning within the group is also supported through the development and implementation of units of activity based on themes identified as special interest. This component is of secondary importance in planning, and would never conflict with individual learning of each child.

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[1] Evans, Ellis D. Contemporary influences in early childhood education, New York: Holt, Rinehart & Winston, 1971.

To sum up then, the model specifically aims:

- to give the child opportunities to develop his own activities;
- to encourage the child's acceptance of self, others and environment;
- to develop a range of expressive skills and openness to new experience.

COGNITIVELY ORIENTED PRE-SCHOOL CURRICULUM

Piaget's cognitive developmental principles are taken as a framework for organising a program actively concerned with the child's intellectual development within a general developmental context. Weikart's curriculum model (1962-1969) has formulated these developmental principles into an educational program aiming to provide children with a context in which they can construct an understanding of themselves and the world in time, space and in relation to certain events. This construction develops where they can construct organised relationships among objects and events in the world and construct representations of themselves and the world. Weikart's curriculum is generated from the interrelationships between levels of symbolisation (object, index, symbol, sign) levels of operation (verbal and motoric) and content areas (classification, seriation, temporal relations and spatial relations).

From this model procedures are determined for achieving these specific goals:

- the children's increasing ability to plan and carry out their own activities;
- the children's increasing ability to work/play with other children and adults so that work can be done as a result of planning and sometimes cooperative work;
- the children's increasing ability to express themselves in speaking, writing or dramatising and graphically representing experiences;
- the children's increasing ability to apply the classification, seriation, spatial, temporal and quantitative reasoning abilities in everyday situations with everyday materials;
- the children's increasing openness to the points of view of other people.

The system for implementing these developmental strategies is a fixed routine. Children plan, work then represent activities at each session. Specific areas are designated within the school and children locate each activity within an area. Teachers assist in the completion and elaboration of these plans but children retain discretion over the direction of their work. Children are asked to recall and represent their work in various ways: verbally, graphically, dramatically, and so on.

Teachers offer new activities for children to plan among which represent opportunities for developing specific skills or to confront children with certain cognitive demands for their resolution.

Evaluation of a set of cognitive behaviours is constant to provide information for teacher planning of individual or small group tasks. Parental involvement is assumed to be crucial to the effective implementation of many goals so that their function within a planning context is important.

THE COMPETENCY BASED PROGRAM

Introduction

The competency based program has developed out of the area of early childhood education which has attempted to specify which elements of education are essential for a child to be successful in school. It has been based on a thorough review of child development theories by encapsulating some of the research studies which suggest that certain abilities and attitudes are essential for children if they are to be socially competent. The specification of these competencies has been the task of curriculum development to date with input coming from teachers, infant mistresses, parents and project staff. In many ways the program is still evolving and will continue to do so as the teachers encounter the needs and abilities of the different groups of children. In this process there are two main research variables which are to be examined - the children's cognitive development and their attitudes towards the process of schooling. As it is believed that the children's development in these two areas is affected by his feelings of self esteem, the growth of a positive self-concept is emphasized.

Curriculum

To determine the elements of the curriculum incorporated into the competency based program, infants' teachers in the Mt. Druitt area were asked to specify those elements that they believed were essential for success in school. This listing was married with the comments of a review panel consisting of the teachers involved in the program, parents and academic advisors. The resultant curriculum is thus both broad and specific. It was regarded as essential that the children be exposed to a variety of experiences which are generally structured around a thematic approach in which specified competencies are planned for. From this broad framework more specific experiences are provided for each child which will lead towards mastery, with the sequence and rate varying for different children.

The key subject areas in this program are language and communication skills, coordination skills, cognitive skills, creative activities and cognitive skills. Thus children are introduced to the major areas of curriculum found in their subsequent infant school. The following list presents the teacher's view of teachable and non teachable competencies:

Teachable Competencies, i.e., provided through directed instruction

1. Language and communication skills.
2. Quantitative and relational concepts, understandings and skills.
3. Categorising skills.
4. Health and safety maintenance.
5. Perceptual and perceptual-motor skills.
6. Problem solving skills.

Non-teachable Competencies, i.e., not directly taught

1. Differentiated self-concept and consolidation of identity.
2. Concept of self as an initiating and controlling agent.
3. Positive attitudes towards learning and school experiences.
4. Realistic appraisal of self.
5. Flexibility in the application of information-processing strategies.
6. Prosocial tendencies.

As the focus is on working with individual children the curriculum content has to be arranged along a vertical continuum from a grass level to a more finer level of development which is allied to a more complex level of

development. Within this vertical continuum a skill is developed from the concrete to the more abstract level. The actual rate and level of progression is determined by the strengths and weaknesses of the children.

Teaching Style

Unlike some other preschool programs no specific teaching style is specified for the program. The teachers and aides support and interact with the children continuously during the sessions, helping and guiding where necessary. They plan for their lessons on a daily and longer term basis with all contributing to the task.

During the session a designated period is set aside for instruction in which the children are placed into specific groups whose size and function vary according to the task at hand. It is during this time that the children's attentions to the targeted competencies are turned. Using a diagnostic approach the children's performances are evaluated, specific materials introduced based on targeted competencies then their progress is evaluated on a longer term basis. Wherever practical instruction is individualised but at times group lessons are given to children functioning at similar levels of development.

The motivation for success is in accomplishing the tasks. By carefully matching the material to the levels of abilities a continuum of reinforcement is provided from the concrete reward of achieving the task to the verbal praise of the teacher. This intrinsic reinforcement doesn't come quickly or easily but by carefully matching activities to the children's level, success is reinforced. To ensure that the teacher provides material that is challenging but not frustrating, it is obvious that one of the key elements in the program is the diagnostic abilities of the teachers and aides. Detailed records are kept on each child which facilitates this procedure.

Routine and Materials

The children's routine during the session generally follows a similar pattern and this consistency is highlighted by the teachers' adherence to the routine. A typical session would be:

Approximate times	
9.00am - 10.15	Free choice of activities with adult help where needed. Initiative rests with child. Packing up - this is emphasised as a social activity.
10.15am - 10.35	Juice and show and tell time in which children show and discuss their previous activities. Competency targets are stressed informally where possible.
10.35am - 10.50	Group activities where competencies are stressed. Size of group and its membership vary.
10.50am - 11.20	Large group activities - singing, games, stories, songs, rhythm, etc.
11.20am - 11.30	Preparation for home.

No specified materials are included for use in the program as the teachers use whatever they believe to be appropriate. Where appropriate opportunities are taken to take the children on excursions outside the school.

Parents

Parents have a crucial task to play within the program as it is believed that parental role of being the primary educator must be strengthened and developed. To strengthen the links between school and home parents are encouraged to participate in the life of the preschool by assisting with routine duties and by interacting with the children. Hopefully they will model their behaviours on the teachers and aides in the room. A further link with the home is provided by the teachers sending home a precis of the planned activities with suggestions to be followed up by the parents. As with other programs in the Project, regular meetings are held with parents on various aspects of child development.

Summary

In some ways the competency based program may be likened with traditional preschool programs. However the crucial difference is, unlike in the traditional approach the teachers do not follow the interests of the child in determining their curriculum content. Rather they preplan their teaching activities according to pre-determined competencies. A summary of the key components follows:-

- continuous adult-child interaction (parent, teacher, aide)
- consistent temporal order of day
- grouping according to abilities
- spatial order in classroom
- aides functioning as teachers
- daily planning and evaluating
- purposeful intrinsic reinforcement with sequenced activities
- based on perceived needs of children in the area.

THE BEHAVIORIST MODEL - WHALAN PRESCHOOL

This model is based upon the program developed by Don Bushell at Kansas University. He provides the following descriptors to outline the model:-

1. Specify the final performance and develop a way to measure it.
2. Determine the student's current performance level.
3. Construct a favourable learning situation.
   (a) Provide prompts for appropriate behaviour.
   (b) Eliminate prompts for inappropriate behaviour.
4. Establish motivation:
   (a) Identify the students' reinforcers.
   (b) Construct a system for the contingent delivery of reinforcers.
5. Shape
   (a) Reinforce successive approximations of the final performance.
   (b) Gradually raise the criterion for reinforcement.[1]

Further, it is considered that perhaps the most crucial, defining characteristic of the model is teacher behaviour. Below is a summary of a quite prescriptive instructional teaching criteria that is required of the teachers.

1. 80% Children On-Task
2. 100% On-Task Contacts
3. 100% Contacts contain Praise
4. 90% Contacts with Prompts also contain Descriptive Praise
5. 0% Disapprovals
6. 4 Children in Group working at 80% accuracy
7. Time-out (if used) is used appropriately.

Behaviour analysis teachers seek the elimination of all harsh punishment and coercion from the classroom. They have several basic procedures for altering behaviour in such a way that undesirable behaviours are eliminated and desirable behaviours are strengthened without the use of punishment. One technique, provided it is applied consistently from the very beginning, is to ignore unwanted classroom behaviour while giving immediate praise and attention for its desirable opposite. This also requires that teachers always be alert to reinforce children behaving appropriately.

However, there are some behaviours which compete with effective learning that cannot be ignored. When one child hits another with a hammer, you cannot pretend it didn't happen. If a child crawls on to the roof, you don't ignore it. Prohibitions are placed on behaviours that can injure people or damage property. Any violation of these leads to the immediate removal of all possibility of reinforcement. This procedure is termed "Time-Out".

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[1] Bushell, D., Classroom Behavior, New Jersey: Prentice Hall, 1973, p. 32.

Unlike the Bushell model, a token economy has not been introduced at Whalan Preschool. The teachers are relying entirely on the reinforcing value of adult approval and praise.

> "Teacher attention in the form of a pat on the back, a hug, a smile, or a word of encouragement can be one of a teacher's most useful tools. By systematically using such teacher attention, the frequencies of a great variety of problem behaviors in pre-school and elementary school children have been successfully reduced. Fortunately, most teachers find the systematic use of praise natural and uncomplicated, and since teacher attention can be used to decrease a wide range of problem behaviors and to increase many appropriate behaviors, teachers should first attempt to handle most problems with teacher attention. Only when praise is ineffective should more complicated and powerful procedures, such as token reinforcement programs be employed."[2]

The main objectives of the program are:-

(a) To develop in each child the abilities which may be termed pre-reading, pre-writing and pre-number skills.
(b) To socialise the child into appropriate school behaviours.

In this model, the teacher assesses the child's behaviour at entry and the child is placed at an appropriate level in a pre-determined instructional sequence. The learning sequence is formulated upon a mastery-learning basis. Systematic instruction is provided for children in small group settings. The teacher's role involves an on-going assessment of the child's present level of performance, to provide the child with appropriate activities, and positively reinforce appropriate behaviours. The major emphasis in planning is on the matching of the child's abilities to the instructional sequence. The curriculum is highly structured, and a teacher's task is to assess where a child is positioned on a continuum of development. Each step is taught at a manageable pace and once mastered, the child progresses to the next level.

Finally, the adoption of the American form of "behavior" is for two purposes. Firstly, it is to indicate the model's source of derivation. Secondly, it is to underscore the stress placed on behaviour. The model doesn't consider that thoughts, feelings and motives don't exist but doesn't find them useful in preparing a course of instruction. Teachers do not ignore internal processes, it is simply that they do not dominate the planning of learning experiences as they do in some other programs.

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2 O'Leary, D. K., & O'Leary, S. G., Classroom Management, New York: Pergamon Press, 1972, p. 87.

Philosophy of Home Visiting Approach

Many different approaches concerning the provision of early childhood education have been advocated but the experiences and evaluation of early childhood programs by authors such as Ryan (1974) and Bronfenbrenner (1974) suggested that the early gains would be attenuated unless

1) parental involvement with parent education, was included;
2) continuity of programs was established.

The incorporation of these ideas into new programs and the extension of the educative process into homes is best exemplified by projects such as Home Start and the Booklme Early Education Project.

These programs attempt to educate parents in the early years of the child's development by suggesting ways in which the parents can help their child to learn. The continuity of the parent/child relationship, and the intensity of its level of involvement, are seen as resources on which to build a network of personal interaction which would ultimately develop and extend each child in the family.

In other settings, two kinds of approaches to home teaching have been attempted. First, paraprofessionals are used under professional guidance, to assist in raising the level of enjoyment of life among severely disadvantaged people. Second, teachers are used to extend classroom teaching into the home by having the teacher regularly visit each family enrolled in pre-school. In practice one of the children in the family may be seen as the focus or target child, but vertical and horizontal spin off is reported to affect the development of younger and older siblings. This is the logical expectation if, in fact, the program aimed to modify parental/child rearing practices generally.

Living and learning - experiences which affect the development of the child

With static roles and context in families, the opportunities for the child to experience different conceptual and linguistic environments may be restricted. This restriction of context may be reinforced if physical and nutritional deprivation prevents the parents from giving proper attention to their child.

Within the Mt. Druitt housing estate there are many families whose comparative socio-economic disadvantagement affects their interchanges with their children. In many ways parents' relationships with their children may be affected by subtle factors. For example, many parents do not consider that play of the children is an important part of the children's development and fail to appreciate how their involvement in this area can stimulate their children's language and conceptual development. Further, great value is put on authoritarian measures as the predominant control and socialisation reinforcers.

Longitudinal studies conducted by Jean Carew et al. (1976) reveal the importance of the early years for development. Carew found that the intellectual experiences of children under three years of age most often occurred in interacting with other people and that these interactions are primary sources of learning. After three years of age children tend to take over the control of their own learning, hence it is important for parents to provide experiences and interactions which are the most conducive for children's development. This quality of the interactions which do affect children's development can be heightened if they are individualised and this is primarily the objective of the visiting teachers as they attempt to model appropriate interactions for parents and to suggest extension activities.

Implementation of the Home Based Program

Children in the Bidwill area of Mt. Druitt may be enrolled in the Program once they are 3.9 years of age. Teachers visit their homes once per week for a period of one to one and a half hours per week. Each teacher visits 12-15 families in which there are up to three children below school age and usually the mother is the primary parent with whom the teacher interacts.

In the initial interview the teacher talks generally with the mother about her aspirations for her child, her feelings about living in Mt. Druitt, and her attitudes towards her own educational experiences. She has available a questionnaire which will be completed within the first month of visits, which will give her an outline of the way the mother sees her own child in terms of commonly held beliefs about what children should know and do. The same items are given in different order for the mother to evaluate as priorities for learning in the pre-school. Until recently each teacher has also been rating the interactions between mother and child, child and teacher, mother and teacher, on a subjective checklist. This has been superseded by a more structured teacher observation schedule. Each of these instruments provides formative evaluation for the teacher. On the basis of this information the teacher can pinpoint some areas of interest and strength, and some areas of deficit, and in discussion with the mother formulate some short and long term objectives. These are never fixed. As new information is available with the progression of the weekly interviews, objectives are adapted. The teacher helps the mother become more aware of needs for her child hitherto unnoticed. At the same time mother's strengths are reinforced. Each weekly visit is planned with a short term objective, which may be an activity of some kind, and with a rationale for linking this activity with the more distant goals for this family. The making of play dough in the kitchen, using domestic supplies of flour, salt and water, may thus be linked with the long term objective of developing mother as participator, or else it may serve to model language and behaviour which extends the child cognitively through measuring, predicting outcomes, and talking about products.

The choices of activities, and the selection of competencies which may be taught are similar to those which can be offered to children attending sessional pre-school but with several differences. Although the teacher may take equipment with her from the toy library she will achieve more lasting results if she can help the mother see the availability of play materials in her own home, and the potential within daily activities like shopping, for interesting and extending her child. Also she can offer only about an hour of her time to the family each week, so that direct involvement with the child in learning activities will not achieve much. What she must attempt to influence is the quality of the participation of the mother and child in common activities around the home. If she can accomplish this most of the learning will take place during her absence.

The three main foci of interaction have been identified for the teacher's attention:

1. The affective exchange between mother and child. Here the teacher attempts to increase the mother's self regard and her appreciation of the strengths in her child.

2. Opening up of mother-child interaction. The teacher helps the mother to leave some questions open for the child to follow up, some decisions for the child to make and provides a model for the mother to stimulate her child's interest and curiosity.

3. Language. Recognising that language is the medium of participation, the teacher helps the mother to listen to her child, and to extend his conceptual world by asking questions and providing new information.

As an expressed need by many mothers for wider socialisation experiences for their children, attempts are being made to incorporate small group activities within the program. These may be held within the differing homes or may be held in the classroom attached to Bidwill school.

Evaluation

In addition to the formative evaluation data described above, summative data are being collected. The sources of this data are -

1) The enrolment sheet;
2) The parent questionnaire on parent perceptions and expectations;
3) The teacher's subjective checklist giving first impressions of Mt. Druitt families who requested Home Base.
4) The teacher's subjective record sheets which outline objectives, give programs, and identify problems after each visit;
5) The revised teacher observation schedule to be used monthly with each family. This replaces the subjective checklist, and is an adaptation of PROSE for home visiting purposes. It differs from PROSE in that there are additional categories of observation in some instances, whereas others were inapplicable to Home Base, and that it is a summary of the events of a particular session, rather than a set of observations taken at arbitrarily assigned moments in time;
6) The Parent Self Concept Scale, currently being developed.
7) The objective measures. PSI, Mathematics, Language, Perception and Physical/Medical examination which will be used throughout the project on a randomly selected sample of children from each program;
8) Communication scales derived from the Eight Block Sorting Task (Hess and Shipman, 1967) and other communication games. These will give information of a very detailed sort about maternal styles of communication and will provide examples of contextualised speech of children.

APPENDIX B

Demographic Analysis of Mt. Druitt Area in Comparison with Sydney Metropolitan Area

0-10%	of area are Upper White Collar Workers
60-70%	of area are Lower Blue Collar Workers
0-1%	of area are Teachers
0-5%	of area are Public Servants
4.7-30%	of area Females Working
1.9-10%	of area attended to final year of schooling
0-1%	of area are University graduates
15-31.2%	of area under 4 years of age
20-31.5%	of area under 10 years of age
0-2%	of area are 65 years and over

from Davis, J.R., & Spearitt, P. (1974)
Sydney at the Census: 1971, Canberra: ANU

APPENDIX C - Map of Mt. Druitt Area