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PLAN FOR TEACHERS OF EARLY CHILDHOOD EDUCATION PROGRAMMES

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Sharyn A. Ezrin

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90014

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The Goals-Guide-Behaviours Evaluation Strategy:
a Formative Evaluation Plan for Teachers of
Early Childhood Education Programmes

by
Sharyn A. Ezrin

A thesis submitted to the
Faculty of Graduate Studies in partial
fulfillment of the requirements for the
degree of Doctor of Philosophy

Department of Psychology
Carleton University
Ottawa, September, 1977

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Sharyn A. Ezrin

1977

The undersigned recommend to the Faculty
of Graduate Studies acceptance of the thesis
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a Formative Evaluation Plan for Teachers of Early
Childhood Education Programmes"

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the degree of Doctor of Philosophy

.....
Thesis Supervisor

.....
Chairman, Department of Psychology

Carleton University

September, 1977

Abstract

The Goals-Guide-Behaviours formative evaluation strategy was designed to provide preschool teachers with the means for assessing their teaching behaviours against their own programme goals' explicit behavioural guidelines through the use of regularly scheduled video tape feedback of their classroom teaching. The purpose of this application of the Goals-Guide-Behaviours strategy was to assess its impact upon the range of teaching behaviours associated with the implementation of one preschool's programme goals as determined from analyses of the observational data coded from a total of 20 hours of video tape filmed on the four participating teachers. Differential patterns in the frequencies of occurrence of certain teaching behaviours over the 10 weeks of video tape records demonstrated that the three predictions for changes in teachers' behaviours that were expected as a result of the teachers' involvement in the evaluation strategy had to be interpreted in terms of the similar patterns shared by distinct groupings of teaching behaviours. Recommended changes for future applications of the Goals-Guide-Behaviours evaluation strategy should assist preschool teachers not only in assessing their video taped teaching behaviours against their explicitly defined goals' behavioural guidelines but also in assessing the effectiveness of their behaviours in influencing their pupils' developmental progress.

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My skilled typist, Dolores Kohlman, has always been the model of the complete manuscript typist, efficient, accurate and prompt.

Finally, I would like to dedicate this research to my husband, Hershell, whose loving devotion has enabled me to fulfill my desires for higher education.

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The purpose of this research was to assess the impact of a self-evaluation strategy for preschool teachers upon their classroom teaching behaviours. The Goals-Guide-Behaviours self-evaluation strategy, designed by this author, enabled the teachers to monitor their classroom behaviours through the provision of regularly scheduled video taped feedback. It was intended to be a self-administrable non-threatening evaluative strategy which teachers could incorporate into their in-service training activities. It was designed so that teachers might gain a greater awareness of the degree to which they, as individuals, were fulfilling the behaviour criteria within the classroom which they, as a group, identified as essential for implementing their programme goals. Furthermore, the schedule of evaluation activities gave the teachers an opportunity to reassess, in both a timely and systematic fashion, the behaviour criteria employed for viewing their video taped classroom behaviours.

The rationale for employing the behaviour criteria as the standard for assessing video taped behaviours was that, in general, preschool teachers attempt to come to agreement upon how they would like to implement their programme goals through their teaching behaviours. After viewing video taped segments of their own classroom behaviours, the teachers should be prepared to reassess the meaningfulness of these criteria as the frame of reference for their programme's operation. They might choose to redefine some criteria or to include others which they had discovered; after having viewed their teaching on video tape were meaningful components of their

video taped classroom behaviours.

The Goals-Guide-Behaviours evaluation strategy has been devised to fill the current need to develop a formative evaluative procedure for teacher self-evaluation (Roberson, 1971). This author recognizes the value of incorporating such a formative evaluative strategy as one component of a broader-based evaluation plan ideally including, as well, short and long-term summative measurement of preschool children's developmental progress. At this point in the process of developing an evaluative strategy for preschools, this author has chosen to focus her interests only on devising and testing the feasibility of the formative teacher self-evaluation component. Her longer term aspirations would include developing the summative evaluative components which would be coordinated with the formative evaluation plan. These summative measures might provide insights into how the impact of the programme in operation might possibly promote greater gains for children participating in a preschool being evaluated.

Upon considering the Goals-Guide-Behaviours plan within the broader perspective of the type of child behaviours that the teachers would like to support and encourage, it is essential that teachers must in the first place attempt to maintain a conscious self-awareness of their own specific classroom behaviours. As teachers spontaneously monitor their own classroom activities within the framework of the espoused programme goals, these goals would hopefully influence the types and frequencies of child behaviours. If teachers are given an

opportunity to make use of such a self-appraisal technique as a regularly scheduled part of their programme planning activities, the pay-off should be seen in effects upon pupil performance (Rashid, 1969).

The historical discussion which follows traces the sequence of events leading up to the acknowledged need for formative evaluations of preschools. Specific early childhood education research activities and educational evaluative findings, beginning with the evaluation of the national Head Start programme in the United States (Westinghouse Learning Corporation, 1969) appear to have contributed toward bringing about (a) changes in early childhood education programmes, as well as (b) changes in the evaluation procedures employed to assess the worth of these programmes. This background information provides the context against which this author devised the Goals-Guide-Behaviours formative evaluation plan for the use of teachers and administrators of early childhood education programmes.

Evaluation of Head Start

Within the last decade there has been a change in the choice of evaluative models employed for assessing the merit or worth of early childhood education programmes (Bronfenbrenner, 1975; Horowitz and Paden, 1973; Tavris, 1976). Professional evaluators were hired initially to determine how well a particular educational instrument performed with respect to the specific academic criteria set by the programme sponsors for their pupils (Bereiter, 1972). In their attempt to answer this question, these evaluation researchers used a pre-post psychometric strategy. They compared children's test scores, on one or

more measures of cognitive and/or socio-emotional development, achieved prior to and after having participated in a programme. Programme evaluations were aimed at determining whether the preschoolers had made any gains as a result of their school experience. Furthermore, children's test scores were compared to the scores obtained on the same tests by children attending preschools following different curricula or non-preschool-going children matched on such variables as sex and age.

Head Start is an example of a nationally instituted early childhood education programme which was evaluated in this manner (Westinghouse Learning Corporation, 1969). In 1965 the United States government took an innovative step in its attempt to fulfill a policy geared toward breaking down the poverty cycle. Head Start involved the establishment and funding of numerous centres throughout the United States to provide an early education experience for young children from low-income families. Head Start initiators were confident that such children would benefit from educational experiences per se no matter what the content. Unfortunately, no clear initial theoretical explanation had been offered to explain the relationship between the aims of Head Start as a social action programme and the content of the educational component (Halsey, 1972).

The staff at the Head Start centres was encouraged to conduct parent education meetings to explain the value of their children's educational experiences. This attempt to strengthen home-school links was geared toward promoting an

interest among parents, in following their children's educational progress and encouraging educational achievement. It was believed that parental involvement might be more easily achieved among parents of children of preschool age (Little and Smith, 1971). The government sponsored summative evaluation found that the children's intellectual and socio-emotional developmental gains which had been evident immediately at the end of the session faded out very rapidly after the children entered the public school system (Westinghouse Learning Corporation, 1969).

Many explanations have been offered to account for Head Start's apparent failure to produce a long-term impact. Some educators believe that government sponsors set unrealistic expectations for Head Start as a comprehensive services programme designed to spearhead the United States fight against poverty (Akers, 1972; Halsey, 1972). There has also been extensive criticism of the specific pre-post psychometric evaluation paradigm employed to assess the impact of Head Start upon the participating children which did not provide any insights into the content of the actual programmes in action (Cohen, 1970; Guba, 1969; McDill, McDill and Sprehe, 1969).

Criticism has also been directed toward the evaluators' failure to take into account the variation in format and quality of individual Head Start centres (Guttentag, 1971; Smith and Bissell, 1970; Weiss and Rein, 1972). Some evaluators who attempted to identify successful strategies among the variety of centres found few programmes demonstrating

persistent and consistent results (Harkridge, Chapulsky, and Roberts, 1968; McDill, McDill, and Sprehe, 1969; Posner, 1968).

The lack of consistency within programmes may have arisen because of the unstructured format of the Head Start preschool curriculum. Even though several different preschool curricula had been developed in the early 1960's for children from lower socio-economic backgrounds, these curriculum models were not fully established or evaluated when Head Start began in 1964. Consequently, the curriculum model recommended for Head Start preschools was the prevailing unstructured-custodial private preschool format. Since the Head Start teachers were most familiar with this format, it was easily adopted and accepted. This approach was further reinforced when the Educational Testing Services uncovered, in their 1966 summer Head Start evaluation, that the majority of preschool teachers preferred an unstructured rather than a structured curriculum (Little and Smith, 1971).

There has been a great deal of criticism of the choice of an ex post facto design to evaluate the impact of Head Start (Campbell and Erlebacher, 1970; Smith and Bissell, 1970). It has been suggested that regression artifacts were produced when the control group of non-Head Start children were matched post hoc to the Head Start children. The regression artifacts are believed to have biased the evaluation results in such a way that the non-Head Start group appeared superior.

Attempts to respond to this criticism were made by

authors of the Westinghouse Study (Cicirelli, 1970a, 1970b; Evans and Schiller, 1970; Williams and Evans, 1969). Cicirelli (1970b), for example, argued that regardless of the possible regression artifacts biasing results, the performance of the Head Start children on the standardized achievement tests was below the national norms. Consequently, he concluded that the preschool experience was not effective in promoting academic achievement.

Evaluations of Early Childhood Education Programmes

As psychologists (Bronfenbrenner, 1968; Denenberg, 1970; Fowler, 1962, 1967; Skeels, 1966) provided research evidence to substantiate the theoretical beliefs advanced in the early 1960's (Bloom, 1964; Hunt, 1961) that a child's early experiences set the pattern for later developmental trends, efforts were stepped up to establish locally initiated early childhood education programmes throughout Canada and the United States. As was the case for Head Start, the most common format adopted for these programmes was the traditional custodial curriculum because of the teacher's familiarity with and preference for this format.

Numerous university and research-centre based preschools were also founded during this period. Their curricula varied according to their differing short term goals for the children's achievement, and the distinctive teaching methods. These programmes were highly structured, in an instructional or task-oriented sense, in contrast to the Head Start programmes which have been labelled unstructured socialization programmes

(Smith and Bissell, 1970).

A variety of experimental early education programmes were initiated. They consisted of variations of the following four basic formats: (a) a year-long instructional preschool (Bereiter and Englemann, 1966; Blank and Solomon, 1968); (b) two years of preschool followed by three years of grade school (Deutsch, 1967); (c) a summer-long preschool followed by weekly home visits during the year to reinforce the summer experience (Gray and Klaus, 1965; Weikart and Lambie, 1968); (d) two years of preschool and one year of grade school combined with parent education and home visits (Meier, Nimnicht and McAfee, 1967).

Initially, the most popular means of assessing the impact of one particular programme was to compare the children's standardized test scores achieved prior to entering the preschool with those attained at the end of the school year. Furthermore, their end-of-year scores were compared with the scores attained by children who had not participated in a preschool programme. Preliminary attempts to follow-up preschool children's achievement demonstrated that IQ gains were not maintained over the long term (Bronfenbrenner, 1975; Horowitz and Paden, 1973).

The logical next step for programme evaluators was to undertake comparative summative evaluations of differently structured programmes. Their aim was to determine whether specific programme formats might be more effective than others in producing permanent gains. Groups of children

attending preschools employing contrasting curricula were matched according to their IQ scores at the onset of the school year (Bereiter, 1972). In order to maximize the comparability of results, researchers randomly assigned equal numbers of children, within the various IQ score ranges identified, to the different programmes to be compared. Such comparisons of specifically constructed programmes were believed to be the most revealing evaluations of the differential effects of typed programmes upon the children's development, as measured on a selection of standardized achievement tests (Bereiter, 1972).

Take, for example, five such comparative evaluation research projects which were published by five different research teams. Interestingly, in all five cases, the comparisons included both academic and traditional preschools, as either the only two programmes being compared (Karnes, Hodgins and Teska, 1968) or as two among a group of programmes (Erickson, McMillan, Bennell, Hoffman and Callahan, 1969; Karnes, Hodgins, Teska and Kirk, 1969; Miller and Dyer, 1970; Weikart, 1972).

With the exception of the Ypsilanti Preschool Curriculum Demonstration Project (Weikart, 1972) these comparative programme evaluations obtained similar findings regarding the impact of certain programme content upon the children's academic achievement. Children in the academic (Bereiter and Engelman, 1966) programme achieved higher immediate IQ gains on the Stanford-Binet as compared to children in other types of instructional programmes (Karnes et al, 1969; Miller and Dyer, 1970; Weikart, 1972).

Continued measurement of these children's academic progress in public school yielded discouraging findings. The differential impacts of the instructional programmes, which existed when the children finished their preschool year, faded out once the children entered public school (Bereiter, 1972). One explanation for the fadeout was that the effects of the preschool experience might have consisted primarily of a temporary acceleration of normal developmental progress rather than any permanent change in level or style of cognitive functioning (Miller and Dyer, 1975).

One comparative evaluation of three preschool programmes produced a unique set of findings that were not duplicated by any of the other evaluations listed (Weikart, 1972). The three preschool programmes involved had different content emphases. One programme was aimed at promoting cognition, another language and a third socio-emotional development. In addition each programme employed different teaching formats. Surprisingly, the initial findings revealed that the children of all programmes achieved similar IQ gains in the first year. However, tests conducted during the subsequent two years of the project demonstrated that the children receiving the cognitive and language-oriented curricula maintained their IQ gains, whereas the initial gains achieved by the children in the so-called unit-based programme, with an emphasis on socio-emotional development, faded out (Weikart, 1972).

The initial IQ gains achieved equally in all programmes

were accounted for by the equivalent degrees of, what were called, curriculum momentum and staff commitment in each programme. Observations of the programmes in action revealed a decline in the momentum of the unit-based curriculum after the first year. This was attributed to a weakening of the staff commitment during the same period (Weikart, 1972).

These findings led Weikart (1972) to suggest that the programme curriculum was exerting less influence upon the children's preschool experience than the various operational components of the experimental project such as a staff's systematic efforts to achieve its programme goals. This suggestion incited researchers to take a closer look at the content of programmes in operation. In particular, the emphasis upon observing and describing teachers' classroom activities implied a radical shift in the focus of evaluative research on early childhood education programmes.

An Early Childhood Education Alternative: Infant Home Tutoring

The lack of long-term gains from the various types of preschool curricula being developed, led some educators to institute programmes for the earlier instructional training of a child which they hoped would produce more permanent physical and cognitive developmental benefits (Gordon, 1969; Ryan, 1976; Schaefer and Aronson, 1972). Thus a new wave of home-visiting projects for infants were developed. They were geared toward teaching mothers how to optimize the time spent with their children in the home.

The Infant Education Project (Schaefer and Aronson, 1972)

involved mothers and their infants in one hour home tutorials five days per week. The home visits were conducted between the infant's age span of 15 and 36 months. (The tutor was responsible for developing materials that would suit an infant's changing needs and interests. Furthermore, the tutor was encouraged to focus the tutorial session on the promotion of language development. Mothers were encouraged but not obliged to participate.

When the tutored children were tested at two years of age, their mental test scores revealed a lower level of performance in comparison to both the norm and the initial gains that they had made at the onset of intervention (Schaefer and Aronson, 1972). Following the programme's termination, the difference between the average IQ scores of experimental and control groups decreased considerably. Test scores obtained after the children completed first grade revealed equal performance on all the subtests of the Stanford Achievement test.

Schaefer was prompted to re-examine the individual children's mental test scores in terms of their mother's attitudes when he realized that changes had occurred in the mothers of the experimental children as compared to the mothers of the control children. The relationship between patterns of mother-child interaction during tutoring sessions and the IQ scores of their children at the end of intervention was analyzed. The following mother characteristics were positively

correlated with the child's mental test achievement at 35 months: maternal positive involvement, interest in the children's education, and verbal expressiveness in the child. These findings led Schaefer to conclude that early intervention should be family-centered to ensure the maintenance of developmental progress in the children.

An alternative approach to home-visiting put emphasis upon developing not only the mother's awareness of her infant's needs, as was the case in the former example, but also helping the mother develop her skills at conducting various instructional activities with her children (Gordon, 1969). This programme focused on the three to 24 month age range. The home visitors were specially trained 'parent educators', from backgrounds similar to the families involved in the programme. The home visits were training sessions for mothers in which parent educators demonstrated specific instructional activities with a doll while the mother imitated the instructor using her own child. The mothers were encouraged to practise these exercises with their child on a regular basis.

Enhanced developmental progress, among instructed as compared to control children, was evident in measures of the children's achievement at the end of the first year of Gordon's (1969) programme. A second year of weekly home-visits was offered to one group of children who had already participated in one year of home-visiting. Simultaneously, another group that served as a control during

the first year was given one full year of home-visits. Children's test scores on performance tests of the Griffiths Scale as well as the test materials employed during home-visiting, demonstrated that two years of home instruction, or instruction begun during the second year produced superior results over no instruction at all. However, home-visits during the first year only failed to differentiate the children's achievement from that of children who had no instruction at all.

The differential impacts of the two home-visiting programmes might be accounted for partially by the different age-ranges of the infants being trained. The rate of developmental progress during these distinct stages should naturally be considered as a contributing factor in comparisons of such programmes. In addition, the impact of the mother's direct involvement in learning specific tutorial activities which they initiated outside of the home-tutoring session should be an important variable.

One Canadian attempt at infant home-visiting was terminated prematurely due both to (a) evidence of performance declines among all infants on the chosen developmental scales, and (b) dissatisfaction with the research design (Ryan, 1976). It was suggested that, in future, research of this kind must attempt to assess the impact of such contributing factors as the impact of the family problems on the child's developmental progress, and the influence of the volunteer home tutor's personal characteristics.

Evaluations of the impact of home-visiting programmes for infants and toddlers did not produce consistent or conclusive findings (Bronfenbrenner, 1975). Because the programmes have been so distinct, that is, in terms of such variables as qualifications of home visitors, the age-range of treatment, and the duration of the programme, comparisons of the effects of these programmes are not meaningful.

Heber's Milwaukee Project is one of the most intensive long-term intervention programmes to date (Bronfenbrenner, 1975). It provided one-to-one stimulation experiences outside the home for children from three months to two years of age whose mothers had IQ's below 70. Between the second and fourth year the children experience day-long care in small groups under the supervision of a group of adults. The experimental and control children demonstrated equivalent IQ performance at one year of age. In subsequent years, the gap between the two groups IQ scores widened to produce a 28 point difference at four years, with the experimental children maintaining higher IQ performance levels than the control children. The issue of what might happen to the children once the intervention is terminated has been raised now that the children are about to enter public school (Bronfenbrenner, 1975). In spite of the researchers' attempt to upgrade the mothers' job capabilities and household skills, there are doubts about the family's ability to sustain the children's developmental progress. The public will be awaiting follow-up results on the children's achievement as they progress through

the public school system.

Innovative Formative-Summative Evaluations of Preschools

The summative evaluations discussed previously aimed to test the effectiveness, upon the children's developmental progress, of the various infant and early childhood education experiences developed during the last decade. The evaluations' emphasis was not on the examination of a programme's operational format or the assessment of specific curriculum features which might have contributed to producing initial developmental gains (Cohen, 1970). The summative approach to educational evaluation has been compared to that of a drama critic who reviews a live production on the basis of such inert variables as the script and applause-meter readings (Parlett and Hamilton, 1972). The drama critic analogy reveals the absurdity of evaluating a dynamic and highly complex entity, such as a classroom-in-action, in terms of input and output measures. Since the findings from both the comparative evaluations as well as the infant home-tutoring projects revealed the lack of a long-term effect of early education, upon the participating children, it seemed that there was a serious need to examine the content of the programmes more carefully. Thus the focus of evaluation research shifted to one in which the study of the relationship between programme features and children's development predominated.

The discussion which follows will consider innovative evaluative methods which have been developed for assessing both educational processes, as well as products. A naturalistic approach to assessing what is actually happening

in an educational setting has been recommended (Bronfenbrenner, 1976; Goodlad, 1969). Moreover, evaluators have been emphasizing the need to direct this process data toward the decision-makers of a programme. This should help to ensure maximal utilization of the data (Weiss, 1972a). Thus, current educational evaluative research is seeking to fulfill the need to provide information for action and decision-making within the context of the programme being evaluated (Stake and Denny, 1969). A formative evaluation, which examines the implementation of programme practices and procedures, attempts to bring the actual programme processes as close as possible to the programme specifications (Borich and Drezek, 1974). This is the main aim of the Goals-Guide-Behaviours evaluation plan.

The first attempts to conduct process-oriented formative evaluations of early childhood education programmes were designed and conducted by outside evaluators as were the summative evaluations described earlier. The evaluators did not choose to collaborate on the planning or running of the evaluation with a programme's staff. The chief concern was to obtain as much information as possible on the programme in action in order to inform the programme's decision-makers on which aspects of the curriculum were essential contributors toward the achievement of programme goals.

One example of an innovative formative evaluation strategy conducted at a preschool for Canadian disadvantaged children was developed by this author (Ezrin, 1971). It was designed to determine whether the functioning early childhood education programme being evaluated provided the types and proportions

of classroom activities recommended by the teachers, in the manner required for achieving the goals. This author measured the degree of consistency between (a) teachers' questionnaire responses regarding both their programme's goals and the most appropriate curricular activities to achieve these goals, and (b) systematically gathered quantitative observational data on the teacher's means of conducting the programme. In general, low correlations were prominent between similar observational and questionnaire category data. These findings revealed that the teachers were not always giving the appropriate amount of time or emphasis to specific classroom activities as would be expected from their questionnaire responses on the degree of importance of the various activities within the daily schedule. Thus, the evaluation report made specific recommendations for programme changes to promote a greater internal consistency between the explicitly stated goals and the curriculum in action.

A similar investigation, which also included some summative measures, was conducted on a selection of four preschools that lacked both explicit goals and explicit curricula (Moffitt and Ryan, 1975). The evaluation was designed to determine (a) the degree of agreement among teachers, within programmes, on the programme goal priorities, as indicated in their questionnaire responses, (b) the degree of observed classroom behavioural consistency within each programme, and (c) the developmental changes, as measured by specific standardized tests, in the preschool childrens' abilities from the beginning to the end of the programme experience.

The developmental test scores were found to be of limited usefulness because programme differences evident in the observational data were not reflected in the psychometric test data (Moffitt and Ryan, 1975). In contrast to Ezrin's (1971) findings, the teachers of these programmes demonstrated substantial behavioural consistency within the same programme. However, a comparison of their questionnaires indicated that they did not fully agree upon the priorities among their programme goals. Again, the evaluators made specific recommendations to the teachers regarding the importance of their reaching a closer consensus on explicitly stated programme goals and the explicit curriculum activities most appropriate for achieving these goals.

Another formative-summative evaluation strategy, involving systematic observation and recording of the activities and interactions in six preschool programmes, was conducted to serve a twofold purpose: (a) to differentiate between individual programmes in terms of teacher and pupil behaviours obtained through quantitative observational records on each programme, and (b) to determine which behavioral dimensions within the classroom appear to contribute to pupil growth (Soar and Soar, 1972). The pupil growth data, obtained from a selection of individual and group tests, were factor analyzed regressed gain scores on each subtest. The two pupil growth factors which emerged, simple-concrete and complex-abstract, subject matter growth, were used to calculate two factor scores for each pupil.

"Pupil mean gain for the complex and simple factor scores were calculated for each classroom, and these classroom means were in turn related to the factor scores from the observation instruments" (Soar and Soar, 1972, p. 233).

Factor analyses of the observational data revealed that moderately high levels of freedom of activity in the classroom contributed most to promoting so-called complex-abstract pupil growth. Simple learning, on the other hand, was found to be enhanced by greater teacher guidance and control. The classroom behaviour dimensions that related most strongly to pupil growth did not appear to distinguish between the different programmes.

This latter finding led the Soars to question the value of examining an individual programme's impact upon pupil growth in contrast to a selection of schools as achieved by this study. Their procedures provided an opportunity to obtain a more general picture of how certain features in a range of classroom formats influenced pupil growth in a similar manner.

One of the most comprehensive formative-summative evaluation strategies employed to date was a longitudinal comparative evaluation of the operational features and the effects of four distinct prekindergarten programmes (Miller and Dyer, 1975). The researchers obtained detailed information on each programme's operational dimension through the use of both video tape and observational procedures as well as through consultants' ratings on the degree to which the

programme as implemented conformed to the model programme description. Programme effects were assessed from the pupils' scores on measures of cognitive, motivational and perceptual development administered at regular intervals through the four years of the study.

Discriminant scores obtained from the observational data on these programmes in-action aided in differentiating between the programmes in terms of (a) classroom structure variables, (b) child activity variables, and (c) teacher activity variables. A series of graphical presentations illustrated the inter- and intra-programme, the latter being across teachers, comparisons on each of a selection of variables which were found to be obvious differentiating features of the programmes. These four prekindergarten programmes were found to differ in the manner expected from the programme descriptions. On some molecular variables, for example, each programme represented distinctly different levels of the variable. On some more general programme dimensions there were only two distinct levels of the variables represented.

Measurements of the children's developmental changes through the prekindergarten year revealed that children in the programmes were superior on the Stanford-Binet to non-schoolgoing controls. Furthermore, across the four programmes, the more didactic curricula appeared to have had a greater influence upon cognitive development. Stable effects over the four years of the research were evident only in the pupil's noncognitive development.

The researchers admitted to not being able to answer cause-effect, that is process-product questions about specific educational treatment dimensions. They also refrained from specifying the most appropriate methodology for research attempts to uncover the effective components of preschool education. Rather, they suggested that in order to examine cause-effect relations in early education, it might be essential to implement and continuously monitor actual experimental situations in classrooms in which strict control over programme components not being studied could be maintained, and where frequent monitoring of possible changes in the children might be included.

Commentaries on Evaluation Research

While the disenchantment with the product-oriented approach for examining the worth of early childhood education programmes was growing, the initial innovative process-oriented evaluations were also found wanting. As a consequence, new strategies have been developed for assessing the ongoing classroom activities which involve participation from the teachers being evaluated in conducting specific components of an evaluation plan. The discussion that follows will outline some of the problems that have arisen with evaluation research and the suggestions from evaluation theorists and researchers as to how these problems might be reduced in future.

The evaluation format currently recommended involves the assessment of programmes in action by evaluators collaborating closely with members of a programme's staff in order to provide

continuous non-threatening feedback on programme delivery (Alkin, 1969; Provus, 1969; Sanders and Cunningham, 1973; Stufflebeam, 1968, 1973; Stufflebeam, Foley, Gephart, Guba, Hammond, Merriman and Provus, 1971; Tuckman, 1976). Such an evaluative strategy has been suggested as an alternative to the summative approach in order to ensure a full commitment from the teachers toward the evaluation procedures.

It is understood that, within the real-life action environment of a classroom, the complex interaction of programme components during an evaluation procedure may cause disruption in the daily routine (Suchman, 1970; Weiss, 1972a). Therefore, it has been recommended that evaluators make themselves fully aware of the kind of resistance they might encounter in a particular educational setting to ensure the use of the least threatening strategy (Bend, 1970; Weiss, 1972b; Worthen and Sanders, 1973).

/A programme's staff would likely resent being kept in ignorance of the rationale for the particular evaluative research activities and the intended research outputs (Bend, 1970). As an attempt to avoid such resentment, evaluators should explain the theoretical premises underlying an evaluation to the staff. Thereafter the staff might be included in the consideration of how the evaluation activities are designed to analyze these premises (Gurel, 1975; Weiss, 1972b).

Evaluators should not be surprised when programme decision-makers and staff become uncooperative if they feel either inconvenienced and threatened by an evaluation design.

(Campbell, 1975; Carter and Wharf, 1973; Weiss, 1972a) or suspicious of and resentful toward an authoritarian research team (Bend, 1970). To prevent such disruptions, the programme staff should be given an opportunity, prior to the initiation of the evaluation plan, to re-examine and clarify their own programme objectives and procedures (Harsh, 1970; Israel, 1969; Stake, 1967; Suchman, 1972). Such preliminary preparation would not only increase the likelihood of developing criteria of programme effectiveness that are acceptable to and meaningful for the staff, but it would also promote agreement and mutual understanding between staff and evaluators (Suchman, 1972). Furthermore, if it is possible, it would be beneficial for evaluators to encourage close cooperation between themselves and the staff during the initial effort to define programme objectives and to formulate criteria for assessing the objectives (Caro, 1971; Johnson, 1970; Pederson, 1975; Rytman, 1976). Close collaboration between evaluators and administrators in choosing evaluative criteria would ensure that evaluators understand administrative concerns and that administrators become more committed to the evaluation strategy (Freeman and Sherwood, 1965).

A high priority planning procedure in developing an evaluation strategy is the identifying of the potential employers of the evaluation results. The evaluation design must be geared toward the needs of the evaluation's audience (Cooler and Grotelueschen, 1970; Parlett and Hamilton, 1972; Weiss, 1972a). Worthen and Sanders (1973) refer to this issue of the evaluation audience in a succinct manner. They

claim that: "Evaluation responsibility is communication responsibility. It is a responsibility to gather information that will be useful to specific audiences" (p. 315).

The involvement of a programme's staff in evaluative data collection should increase the likelihood that the findings will be understood and accepted (Mann and Likert, 1971). Furthermore, the staff should develop a vested interest not only in the particular evaluative strategy, but also in the evaluative findings (Ferman, 1969; Suchman, 1972; Weiss, 1972a). The provision of regular feedback to teachers through the course of the data collection period, should foster a stronger commitment to the evaluation strategy since it would allow for interim advantageous programme adjustments (Caro, 1971; Ferman, 1969; Flanders, 1970; Johnson, 1970; Musella, 1970; Suchman, 1972; Tuckman, 1976; Worthen and Sanders, 1973). Such feedback may even serve as a morale booster (Carter and Wharf, 1973). It is noteworthy that the element of greatest importance which has characterized effective teacher evaluation is the continuous development, revision and implementation of the classroom processes by all persons involved in the evaluation (Harsh, 1970).

The evaluator must keep the audience in mind, not only when designing the evaluation strategy, but also when reporting the findings in order to ensure maximal utilization of evaluation findings (Suchman, 1972; Weiss, 1972b). Effective reporting is achieved with a clear presentation, specific implications for action, and analyses of probable consequences

of implied change (Weiss, 1972b). Unfortunately, educational evaluative reports have often been disregarded by an evaluated programme's staff. The following are possible reasons that have been suggested for a staff's disinterest in implementing recommended changes:

- (a) the failure to direct an evaluation report toward the educational personnel responsible for implementing the recommended change (Carter and Wharf, 1973; Weiss, 1972a);
- (b) the use of obscure or unfamiliar evaluation research jargon (Carter and Wharf, 1973; Ferman, 1969);
- (c) the failure to interpret statistical findings meaningfully (Bend, 1970);
- (d) the failure to provide a working plan for utilization of the evaluative information (Ferman, 1969).

Thus the present self-evaluation strategy for preschool teachers, called the Goals-Guide-Behaviours evaluation plan, was designed as an attempt to fulfill the above recommendations for evaluation research. This evaluation strategy involved the preschool teachers in a series of specific activities which were chosen to promote the teachers' interest in carrying out the evaluation and utilizing the evaluative findings. The following is a list of some of the teachers' responsibilities while participating in the evaluation:

- (a) evolving their own list of programme goal priorities,

(b) describing the behaviours associated with implementing these programme goals, (c) assessing video tapes of their classroom activities in terms of these behaviours, (d) determining the most convenient schedule of group cooperative feedback sessions for discussing their video tapes, and (e) reconsidering the behaviour criteria employed for examining their video tapes for the purpose of revising or adding to the original lists developed for each programme goal.

Teacher Self-Awareness of Classroom Teaching Behaviours

As the recommended formative evaluation procedures would give teachers an opportunity to determine the behavioural criteria against which the programme 'in action' is judged, it is important to examine the degree to which teachers in early childhood education programmes are aware of the kinds of behaviours in which they engage on a daily basis. The recommended evaluation strategies incorporate procedures for providing regular feedback to teachers on the degree to which their actual classroom activities are conforming to the behavioural criteria. This information can serve as the teacher's guide for assessing, for themselves personally whether they are meeting the behavioural criteria closely.

A teacher's ability to be consciously aware of and to be able to judge the value of her classroom teaching behaviours is a basic prerequisite for continuous improvement of teaching as well as curriculum development (Good

and Brophy, 1973; Weikart, Rogers, Adcock, and McClelland, 1971). Unfortunately, most teachers are not trained to monitor their behaviours systematically (McNeil and Popham, 1973). Moreover, teachers do not often receive the necessary systematic feedback which would help them to monitor and assess their own behaviours (Good and Brophy, 1973). Current teacher appraisal procedures involve the rating of specific predetermined characteristics of a teacher's performance in the classroom. An outsider using a predetermined observation system rates the teachers during randomly scheduled periods. Several problems identified with this approach are: (a) the lack of objectivity of the rater, (b) the disruption of the classroom due to the appraiser's presence, and (c) the poor sampling of teaching performance with an average of three visits per year by the appraiser (Teacher Evaluation: Interface on Learning, 1970).

The discussion to follow will provide brief descriptions of investigations attempting to determine whether teachers of early childhood education programmes have an awareness of the degree to which their own subjective predispositions toward their pupils' personal attributes influence the manner in which they conduct classroom activities. In all cases the teachers were observed to be unaware of their own discriminatory treatment toward certain children who shared particular personal characteristics.

In several early childhood programmes, teachers have been found to rate the academic potential of their pupils

according to their subjective assessments of such personal attributes as the children's socio-economic status, physical appearance and language facility. In one kindergarten, the teacher positioned her pupils into graduated slow and fast learning groups on the basis of such pupil characteristics (Rist, 1970). This teacher made evaluative judgements of the children's expected academic capacities after only eight days of school and was unaware of the influence of her subjective biases upon her assessments of each pupil's capability. In another observational investigation of teacher-child contacts in three preschool programmes, sex as well as income status and physical attractiveness were found to exert a similar influence upon the number and types of contacts between pupils and teachers in the following manner (Appleford, Fralick and Ryan, 1976). The girls received a greater number of social contacts but fewer disciplinary contacts than the boys. Socio-economic background interacted with sex to influence these contacts making middle-income females the main recipients of instructional contacts and low-income males, the main recipients of disciplinary and control contacts. Physical attractiveness was determined from ratings of photographs of the children in one school. Both children and teachers were found to initiate more disciplinary and control contacts with the high as compared to the low attractive children; this was particularly evident in the case of low-income children.

Two similar investigations were conducted in a unique preschool setting which brought together children from middle and lower socio-economic backgrounds. The researchers aimed to assess whether the teachers' verbalizations toward their pupils were distinctively different toward the children of the two social classes (Hatton, 1973; Kouwenberg, 1973). In one study the teacher's speech was observed and recorded during 'circle time' (Kouwenberg, 1973) and in the other during the scheduled 'free play' (Hatton, 1973). In both cases, it was found that teachers unconsciously simplified their speech toward lower class as compared to middle class children, in spite of their expressed interest to use the same speech complexity with all children. Thus, these teachers were unaware of their differential treatment of the children from the two social classes, as well as being unable to monitor their speech patterns.

The two formative evaluations of several early childhood programmes discussed above (Ezrin, 1971; Moffitt and Ryan, 1975) should be reconsidered in this section of the discussion. It will be recalled that the evaluators administered a questionnaire to teachers about their programme goals and curricula. The teachers responses demonstrated a lack of agreement about their programme goals, what concepts should be introduced or how the curriculum should be conducted. These findings, when compared to the observational records of the classrooms in action, confirmed Good and Brophy's (1973) suggestion that teachers have a limited awareness of what

actually goes on in the classroom in comparison to what they believe occurs.

All of these investigations into teachers' classroom behaviours have demonstrated the general lack of a conscious self-awareness among early childhood education staff regarding their actual classroom activities. In addition, these teachers had neither been trained nor were they given an opportunity to learn to assess and monitor their daily behaviours. There is no doubt that such programmes would benefit from in-service teacher training activities in order to help teachers reach a consensus upon specific behavioural objectives, and monitor actual classroom behaviours to assess the degree to which they meet the agreed upon behaviour standards.

Several innovative teacher education programmes for elementary school teachers have attempted to fulfill this need to train teachers to be able to be more aware of and to monitor their actual classroom performance (Clarke, 1971). The traditional training emphasis on imparting knowledge of how to teach effectively has changed to one in which specific behavioural objectives are evaluated in terms of observable, measurable changes in a trainee's behaviour through the course of the teacher education programme (Medley, 1968; Reed 1975-76a). Teachers are given the opportunity to put their teaching knowledge into practice through the use of such procedures as microteaching and simulation sessions (Dickson, 1968; Sowards, 1968). They would then receive verbal or

perhaps supervised video tape feedback of their progress which would serve to guide subsequent practice teaching opportunities (Reed 1975-76b). Thus their training experience would involve the building up of a diverse behavioural repertoire which might consequently be adapted to fit the conceptual base of the programme in which they subsequently work.

One problem which might arise within a training programme emphasizing the acquisition of precise teacher behaviours is the trainees' failure to give adequate consideration to the impact of the learned behaviour repertoire upon the pupils. Sowards (1968) attempted to reduce such a problem by encouraging the teacher trainees to learn to recognize and interpret all the verbal and nonverbal feedback from the pupils. This feedback was to be used as a guide for the choice of teaching behaviours within the limits of the instructional objectives. This emphasis upon developing a sensitivity toward such feedback should serve to encourage the trainees to modify spontaneously their teaching performance to best serve the needs of the learners.

Video Tape Viewing for Teacher In-Service Training

The principal means of data collection of the Goals-Guide-Behaviours formative evaluation plan is the video taping of randomly predetermined 10-minute segments of teacher behaviours occurring within the ongoing programme. The teacher's experience of self-viewing on video tape was meant to provide the ongoing feedback which teachers may use to guide their classroom behaviours. The choice of employing video tape

viewing for self-evaluation ensured that the evaluation strategy, as a whole, could be self-administrable by teachers.

The growing popular use of video tape feedback in teacher pre- and in-service training programmes generally involves the provision of video taped feedback for teachers or trainees on their microteaching or simulation teaching exercises or actual classroom teaching performances (Crandall and Shibata, 1969; Dickson, 1968; Flanders, 1970; Reed, 1975-76b; Roberson, 1971; Shibata and Roberson, 1970; Sowards, 1968; Winkelstein, Rubovits, Tucker and Barden, 1976). The results of several investigations that have attempted to test out the effectiveness of different teacher training formats employing video tape feedback will now be reported.

The timing of the provision of the feedback to the teacher trainee does not appear to be a critical factor influencing the effectiveness of training (McDonald and Allen, 1967). However, when teachers viewed their video taped behaviour sequences without a criterion behaviour model to serve as a guide for assessing the teaching behaviours, their reactions to the video tape appeared to be determined by personal predispositions indicated on an attitude questionnaire and through interviews (Salomon and McDonald, 1967).

The research aimed at assessing the usefulness of self-viewing of video taped behaviours for teacher trainees (Bedics and Webb, 1971; McDonald and Allen, 1967; Salomon and McDonald, 1970) as well as employed teachers (Ellett and Smith, 1975;

Jensen, 1968) demonstrated that in order to facilitate the development of desirable teaching behaviours the video tape viewers must have teaching-behavioural expectations for themselves. In the case of teacher trainees, the research revealed that a set of explicit behaviour standards must be accepted by the trainees as the criteria for judging the appropriateness of their teaching behaviours (McDonald and Allen, 1967; Salomon and McDonald, 1970). Moreover, training in the analysis of teaching behaviour seemed to shift the trainees focus of interest, while viewing their video tapes, from their own personal characteristics to concern with their teaching performance (Bedics and Webb, 1971). It is noteworthy that the self-viewing of video taped behaviours was found to be ineffective in promoting the development of specific teaching behaviours when employed as the sole procedure in teacher training (Kallenback, 1966; McDonald and Allen, 1967).

One investigation assessed the effectiveness of providing model video taped behaviour in training student teachers to give positive feedback to specific child behaviours (Rutherford, 1973). This was found to be an effective training technique. Moreover, this research assessed the differential effects of modelling alone or combined with video taped feedback as well as video taped feedback alone upon the acquisition of the teaching behaviours. The provision of feedback alone did not differ significantly from the control condition in eliciting the criterion behaviour. However, as long as the model was provided the training was effective.

A thorough search through the educational evaluation and teacher training literature, uncovered only two attempts to examine the effectiveness of video taped feedback as an in-service training device for teachers (Ellett and Smith, 1975; Jensen, 1968). In both studies the researchers randomly assigned teachers to groups receiving different combinations of the range of evaluative activities being assessed. Jensen (1968) used five different groups of teachers in order to produce a range of evaluation experiences including one, two or three of the following evaluative activities: (a) self-observation on video tape, (b) participation in a workshop on instructional objectives, and (c) participation in goal-setting activities. Ellett and Smith (1975) instructed half of their teachers to watch video tape replays of their teaching and to employ a self-rating instrument for assessing their classroom performance. The remaining teachers viewed video tapes made of their teaching only at their own request, but the self-rating instrument was not provided. Very briefly, the findings of both studies revealed that the most influential features of the evaluation strategies upon the teachers' behaviours appeared to be the experience of assessing one's teaching on video tape in terms of a pre-determined set of criteria such as programme goals or a self-rating measure.

The Video Inservice Program (Crandall and Shibata, 1969; Shibata and Roberson 1970) also provides video tape feedback for teachers on their classroom behaviours. It is a strategy designed to assist teachers in self-appraisal

through discussions with a staff development counsellor about the teachers' video taped behaviours. The involvement of such an evaluation supervisor was eliminated in the newer self-appraisal technique which employs Roberson's (1971) Teacher Self-Appraisal Observation System (TSA). The teachers use the TSA to code video tapes of their classroom behaviours into three categories, (a) method, (b) objectives and (c) expressions, verbal and non-verbal. The purpose of this self-appraisal strategy is to provide feedback for teachers on the relationship between their planned and actual teaching performance. Roberson (1971) generalizes about the results of several attempts to implement the TSA program. In all cases there was evidence for (a) greater teacher awareness of different instructional formats, (b) improved teacher morale, (c) improved instructional methods, and (d) greater student achievement.

Teachers wanting to improve themselves must be willing to critically examine their ongoing classroom behaviours (Baker, 1970; Good and Brophy, 1973) as well as to assess the degree to which their classroom activities are appropriate for the implementation of their programme goals (Ryan and Moffitt, 1974). When teachers are given the opportunity to assess the degree of discrepancy between their own video taped classroom behaviours and a set of behaviour criteria, they will usually attempt to change their behaviours to reduce any discrepancy (Flanders, 1970; Good and Brophy, 1973; Jensen, 1968; Tuckman, 1976). It has been suggested that when teachers meet as a group for in-service training, they should criticize actual classroom behaviours

in terms of an agreed set of criteria as well as provide suggestions for alternative behaviours (Good and Brophy, 1973).

A thorough review of written reports on the variety of observational category systems that have been devised for on-site recording of teacher and pupil classroom behaviours (Dunkin and Biddle, 1974; Emmer and Peck, 1973; Gordon and Jester, 1973; Medley and Mitzel, 1958, 1963; Rosenshine and Furst, 1973) led this author to conclude that such published observational records would not assist the teachers, participating in the Goals-Guide-Behaviours evaluation plan, in strengthening their awareness of their own classroom behaviours. Rather, the teachers would benefit more from evaluating their behaviours in terms of the specific behaviour criteria which they themselves have evolved for their own programme (Flanders, 1970; Simpson, 1971). The value of permanent video tape recordings for the study of the processes of teaching cannot be underestimated (Dunkin and Biddle, 1974).

Assessing the Impact of the Goals-Guide-Behaviours Evaluation Plan

In his review of observational instruments for evaluating classroom instruction, Rosenshine (1970) acknowledges the poor generalizability of such observation systems. Problems can arise in the choice of an observation system for process evaluation because the teacher or evaluator usually has no specific guidelines for selecting one observational instrument over another. Rosenshine finds fault with "those who develop

sets of instructional materials /who/ seldom provide guidelines specifying the classroom behaviours that are important in evaluating instruction" (p. 293). Thus, he encourages evaluators to develop their own observational system appropriate for the programme being evaluated. They could design observation systems to suit the unique programme objectives and the combinations of classroom behaviours which appear to be most critical to the achievement of the objectives.

It is for these reasons that the observation and formative evaluation of the video taped teacher behaviours in the Goals-Guide-Behaviours evaluation plan was conducted through the use of the lists of behaviour criteria associated with the programme goals which the teachers devised for their own video tape viewing. This ensured that they not only suited the particular programme being evaluated but that these behaviour criteria were also meaningful to the teachers (Simpson, 1966). Use of lists of teacher behaviour criteria also complies with the suggestion that evaluative criteria be fully understood by a programme's staff, who are a key component of the evaluation audience. Thus, the results from the evaluator's coding of the video tapes would hopefully be understood by the teachers involved in the Goals-Guide-Behaviours evaluation plan.

In order to obtain a measure of the reliability of an observation system based on teacher-developed behaviour criteria, the investigator developed two different observational formats for coding the teachers' video tapes, a sign system and a category system. The two systems complied with

the guidelines for developing educational observation systems established by Medley and Mitzel (1963). A sign system has the advantage of preserving the raw data, since the observation items are closely tied to explicit, low-inference behaviour events (Biddle, 1967). A category system, in contrast, destroys discrete behaviours by grouping them under a label or category (Gordon and Jester, 1973). Consequently, the category items cover fewer behaviour dimensions (Dunkin and Biddle, 1974). However, a category system is preferable when only one dimension of behaviour is observed. In the case of this research, the sign system consisted of all of the behaviour criteria, developed by the teachers for their own self-viewing, as individual observation items. The category system, on the other hand, required that the video-tapes be coded in terms of individual programme goals which were considered to be one dimensional. By employing two different observational formats for the coding of the entire set of video tape records, a double check on the reliability of the behaviour criteria was achieved.

The Goals-Guide-Behaviours Evaluation Plan

The Goals-Guide-Behaviours evaluation strategy consisted of a predetermined sequence of individual teacher and group activities. The investigator chose those activities which might encourage the teachers to monitor individually their own ongoing classroom behaviours, in terms of the set of mutually agreed-upon behaviour criteria. The behaviours were believed to be the means whereby the teachers as a group, would implement their programme goals.

A preliminary brainstorming session was held in which the teachers and the director developed definitions of their programme goals, as well as descriptions of the set of teaching-behaviour criteria appropriate for each distinct programme goal. Five hours of video tapes of individual teacher's behaviours were filmed over a 5 month period according to a predetermined timetable. Each teacher examined a total of 1 hour and 40 minutes of her own video taped behaviours, viewing two different 10-minute segments per month, and assessed the degree to which they met the agreed-upon behaviour criteria. Moreover, the teachers were encouraged, but not obliged, to select one video taped behaviour segment per month which exemplified one or more of the behaviour criteria. These segments were to be shown during the monthly cooperative feedback sessions which followed each month's viewing. The teachers' video taped behaviour examples were intended to serve as models for the other teachers wanting to learn alternative ways of fulfilling the behaviour criteria. It was decided that each teacher would be video taped during different types of activities, prior to each cooperative feedback session, in order to increase the number of possible behaviour situations considered at these sessions.

The cooperative feedback sessions had a threefold purpose: (a) to provide individual teachers with an opportunity to comment on and to show examples of their own video taped classroom behaviours in terms of the specific behaviour criteria; (b) to discuss the behaviour criteria that were not observed to occur on the video tapes and to

consider how they might subsequently be implemented within the context of certain curriculum activities; (c) to review the appropriateness of the behaviour criteria for viewing video tapes and to revise the criteria if necessary. After the occurrence of revisions in the behaviour criteria, the revised lists of behaviours were immediately posted on the preschool walls.

Method

Subjects

The four female teachers of the Carleton University Preschool, and the Preschool's Director, also female, were full participants in the Goals-Guide-Behaviours evaluation plan. The teachers' ages range from 23 to 26 years. In order to provide some background information on each staff member, they will each be identified by name and their training in early childhood education will be identified. Marian, who has been the Director of the Carleton Preschool for two years was trained at the Institute of Child Study at the University of Toronto. Claudia, the head teacher, received her M.A. in child development at the University of Minnesota. Both Claudia and Betty spent their first year at the Carleton Preschool during the 1976-77 academic year. Betty obtained her teacher training at the Froebel Institute, College of Education, London, England. Anita and Diane were teachers at the Carleton Preschool from 1974 to 1977. Anita completed the Early Childhood Education programme at Algonquin College. Diane graduated from the University of Guelph with a Bachelor of Applied Science in Child Studies.

Setting

The Carleton Preschool is located on the third floor of the Loeb Building, Tower A, Room 339. Figure 1 depicts the floorplan of the Preschool's indoor facilities. The areas that are marked with diagonal lines are the locations for the video taping of teacher behaviours.

The programme consists of two half-day sessions, five days a week. The morning session begins at 9 a.m. and ends at 11:30 a.m.; the afternoon session starts at 1 p.m. and ends at 3:30 p.m. The children enrolled in either the morning or afternoon sessions range in age from 2 years 9 months at the onset of the school year to approximately 5 years by the end of the school term. The full enrollment in the morning session was 29, 17 boys and 12 girls. The afternoon group consisted of 17 pupils, 12 boys and 5 girls.

The Preschool consists of an open environment in which the pupils have the opportunity to select their choice of activity. One teacher is assigned, on a weekly rotational basis, to each of three main areas: art, active, and quiet. Weekly staff planning of the types of activities to encourage and the appropriate materials to provide is an attempt to provide continuity in each area from week to week. The teacher in charge of an area is responsible for executing the approved plan. One of a teacher's responsibilities in an area is, for example, to provide guidance and assistance when her services are requested by the pupils. The fourth teacher is called the floater. She plans the daily small group sessions

Figure 1. Floorplan of the Carleton Preschool's indoor facilities (not to scale).

locations for teacher behaviours videotaping

which cater to children of similar developmental levels. She also prepares the mid-session snack. The floater may be called upon to assist in another area when necessary.

The type of activity encouraged in each area is determined primarily by the materials provided. The active area provides a multi-faceted wooden climbing apparatus as well as a wide assortment of wooden blocks and trucks. In one corner of this area is the dramatic-expressive centre. Child-sized furniture and the essential accompanying props are arranged to create the children's choice of setting which can range from a home to a hospital or post office.

The materials provided in the art area may vary from week to week or even day to day. They are geared to provide the child with a range of sensual and manipulative experiences. The children may roll, shape or pound clay or plasticene. They may paste an assortment of colourful paper, cloth or decorative shapes or paper. The children may even build mobiles from the collection of items they have gathered on a nature-walk field trip.

In the quiet area, the provision of such task-oriented materials as puzzles, pegs and boards, and graduated cylinder blocks is aimed to promote a child's ability to learn to use and enjoy such so-called think-and-do toys. One corner of the quiet area is reserved for looking at books and listening to records.

Procedure

Prior to the initiation of evaluative activities the

preschool staff read the research proposal in order to ensure their understanding of the rationale for this evaluative research. The investigator met with the preschool's director and head teacher to plan the format of the opening brainstorming session.

Brainstorming session. The opening brainstorming session was held on November 18. The school was closed for this so called 'professional development day'. The agenda of this initial brainstorming session specified allotted time periods for the sequence of predetermined activities as drawn up by the investigator in cooperation with the preschool director and head teacher.

The investigator opened the meeting with introductory comments on the purpose of the research and the format of the Goals-Guide-Behaviours evaluation plan. She emphasized the importance of teacher involvement in educational evaluative research. One half-hour period followed in which the teachers and the director were asked to record individually their answers to the following question, "If you were setting up a preschool, what goals would you choose as the guidelines for conducting the programme?". After a short coffee break the investigator asked the participants to read out the programme guidelines that they had recorded. The investigator listed these items on several large blackboards for everyone's perusal in the order in which they were raised. After everyone's suggestions had been written down, the participants attempted to group any related guidelines into distinct goal categories.

The teachers and the director came up with six distinct goal categories which they believed were the basis of their own programme. They are, (a)-locus of control, (b) self-esteem, (c) interrelationships, (d) representation, (e) information-gathering, and (f) creativity. They developed definitions for each of the goals. The goal labels and summarized definitions of each goal are listed below.

(a) Locus of control refers to the development of a child's internal sense of control and willingness to take the responsibility for his own decisions. This might promote the development of a sense of competence in cognitive or social problem-solving, for example.

(b) Self-esteem refers to the promotion of a child's self-respect, feelings of self-worth and self-confidence.

(c) Interrelationships refers to the promotion of trusting and honest personal relationships for a child with adults and with peers. This goal also covers the promotion of reciprocal respect for the materials, property, ideas and feelings of others.

(d) Representation refers to the development of a child's ability to represent experiences through such symbolic forms as language, visual art, and sound.

(e) Information-gathering refers to the promotion of a child's ability to predict the effects of his actions on others or on objects and thus to be able to understand causality in his daily experiences.

(f) Creativity refers to the promotion of a child's

appreciation of his own innovative behaviours as well as the creative expression of others.

The development of explicit definitions for their own programme goals ended the brainstorming session's morning activities.

After a lunch break, the teachers and the director attempted to define specific teacher behaviours which they believed were essential for putting the six programme goals into practice. Due to the fact that a great deal more time for discussing teacher behaviours was required than the investigator had anticipated, only one of the six goals was considered fully that afternoon. Discussion on the other five goals was held during a specially scheduled Sunday afternoon meeting in the investigator's home.

During that meeting two pairs of goals were combined to reduce the duplication that existed across some of the goals. Teacher behaviours associated with the locus of control and self-esteem goals were agreed to be related. These two goals were combined to make up the locus of control goal. Two of the behaviours associated with the information-gathering goal were combined with items making up the representation goal. The one other item associated with information-gathering actually restated one of the locus of control behaviours. Thus the teachers and the director identified four programme goals and the behaviours associated with them which they believed were different and relatively independent. These were, (a) locus of control, (b) interrelationships,

(c) representation, and (d) creativity, given in their order of importance' (see Appendix A for the full definitions of each goal and the behavioural means of implementing each goal). An audiotape was made of all components of this initial brainstorming session.

Practice using the video tape equipment. The investigator took part in a 3 hour training session held on November 9. It is noteworthy that the operating procedures could be mastered by a previously inexperienced person in such a short time. She learned the procedures for assembling and running the video tape equipment required for video taping teachers' classroom behaviours. Thereafter the investigator had possession of the following pieces of video tape equipment which were stored in room 318 (see Figure 1) in the preschool through the duration of the research: (a) one 3600 video tape recorder, (b) one TV monitor for playback, (c) one Sony video camera, (d) one omni-directional microphone, and (e) 26 one-half inch video tape reels. The convenience of locating the video tape viewing room within the preschool's physical boundaries cannot be underestimated. It ensured a minimum amount of disruption for the teachers involved in regular self-viewing sessions.

During the 6 week period between November 9 and December 18 the investigator as video tape operator made regular visits with the video tape equipment into the preschool's morning programme for the threefold purpose of: (a) accustoming pupils and teachers to the equipment and the filming procedures; (b) practising the use of the video tape

equipment in the four classroom activity areas called active, art, quiet and snack; and (c) deciding upon the most appropriate camera and microphone positions for video taping the teachers in the four distinct activities in which they might be engaged. After about four weeks of practice video taping in the classroom, the initial self-conscious reactions displayed by both the children and the teachers appeared to decrease.

During the 6 weeks of practise video taping the investigator perfected her video taping skills. She found that she could carry out all the filming and move the equipment without the assistance of an operator. This attested to the feasibility of having one member of an educational programme's staff conduct the video taping.

Date schedule for Goals-Guide-Behaviours evaluation plan.

In early December the investigator drew up a tentative date schedule indicating the days on which video taping, video tape viewing and the monthly cooperative feedback sessions would occur (see Appendix B). This schedule for the evaluation plan was reassessed regularly and occasionally revised to accomodate it more appropriately to the programme planning. For example, the March cooperative feedback session was postponed several days since it would have conflicted with the winter preschool parent meeting. (The teachers usually made every attempt to schedule special programmes or field-trips so that they would not interfere with the classroom video taping.

In addition to scheduling the days on which video taping

occurred, the investigator randomly assigned the sequence of video taping individual teachers in the four different activity areas per day. This random assignment of areas video taped per day was to ensure that the video tapes were representative of the types of activities occurring through an average morning's session. Since activity in the quiet area began at 9:30 a.m., the video taping usually began at that time, to coincide with the opening of the quiet area. A day's video taping was usually completed by 11:00 a.m., at which time the children were encouraged to play outdoors. One further time constraint upon random assignment of areas video taped was the timing of the mid-morning snack. Since snack was made available from approximately 10:00 a.m. until all children interested in the day's snack had been served, it was essential to begin video taping at the onset of snack. It frequently lasted only 10 minutes. Thus the order of video taping the art, active and quiet areas was assigned randomly. The snack was fitted into the day's order at the most appropriate position on the day of video taping. Snack video taping usually occurred in third position.

It was essential to coordinate the video taping schedule with the teacher's weekly rotation of area responsibility which occurred each Thursday. This ensured that an individual teacher's video tapes would include equal proportions of video tape time in each area. This was achieved for the first 4 hours of video tape obtained on each teacher. The final hour of video tape collected in May was an exception to this

distribution of the activity areas. During this hour, the areas of activity video taped were the same as those video taped in April. The teachers willingly accepted this duplication in the last 2 hours of video tape. For example, during the first half-hour of video taping in both January and February, Anita was filmed in the quiet area, Betty in the active area, Diane in the art area, and Claudia in the snack area. The second set of three 10-minute video taped segments obtained in January and February filmed the teachers in different areas. Anita was filmed in the art area, Betty in the snack area, Claudia in the active area, and Diane in the quiet area.

Video taping in the classroom. A total of 5 hours of video tape was obtained on each teacher. Thirty 10-minute video tape segments on each of the four teachers were filmed during the morning programme usually on Thursdays, Mondays and Tuesdays. The teachers had suggested that all video taping be conducted during the morning programme. Due to the fact that the number of children in the afternoon group was just over half that in the morning group, the teachers preferred being video taped with the larger group. They believed that with more children there would be more opportunity to implement the diverse teacher behaviours associated with the various programme goals. Wednesday and Friday mornings were not ideal for video taping since an additional teacher was present in the classroom. She was conducting exploratory research on teaching techniques for promoting the understanding

and use of music among the children. On Wednesday and Friday the four regular teachers scheduled 40 minute observation periods for themselves. During these intervals the music teacher substituted in the activity area for which the teacher observing would have been responsible. Thus video taping on these mornings required additional scheduling to ensure that all teachers were video taped.

If a teacher was unexpectedly absent on a day scheduled for video taping, due to sickness for example, video taping of the other teachers was still carried out as planned. The absent teacher was video taped upon her return at the earliest convenient time. Such a delay usually shortened the period of time during which she could view the randomly selected 10-minute segment for that particular block of tapes.

The entire schedule of activities making up the Goals-Guide-Behaviours evaluation plan is depicted in Appendix B. It lasted approximately 6 months, beginning November 18 and ending June 2. The final brainstorming session was held on June 2.

Coding video tape reels. Five half-inch, 1-hour video tape reels were assigned to each teacher on which only her own teaching behaviours were video taped. This ensured viewing privacy for each teacher. Each teacher's five video tape reels were assigned a letter code from A to E such that there were four tapes in each letter code category, one for each teacher. In addition, another letter-code system was developed for identifying the month and day on which the 10-minute video

segments were filmed. Prior to filming each group of 10-minute segments on each teacher, the investigator recorded the appropriate letter codes at the end of the previous segment of video tape for each teacher. The letter code system for identifying the dates on which video tape segments were filmed was essential for disguising the dates of video taping from the naive observers employed to code the video taped data.

The first three hours of video tape on each teacher were filmed on tapes identified by the letter category of either A, B, or C. The final two hours were filmed on tapes D and E. Each of the four 10-minute video tape segments identified by the same date-letter-code were assigned randomly to the video tape letter categories in order to ensure that one tape category did not consist solely of video tape filmed on, for example, the first of the group of 3 days of video taping.

Teachers' viewing of video tape. Prior to initiating the video taping of teachers' classroom behaviours, the investigator familiarized the teachers with the procedures for playing-back the video tapes of themselves. Within the lab in which the viewing was carried out, a full description of explicit instructions for viewing was provided by the investigator (see Appendix C).

A dittoed Viewing Record Sheet was also provided in the viewing room. Each teacher had her own copy which was kept in an envelope identified by her name. During the occasions on which the teachers viewed their video tape they were instructed to record the following information on their

Viewing Record Sheets: (a) the date on which they viewed their video tape; (b) the number of times which each 10-minute video tape segment was viewed on each occasion; (c) the letter code identifying the video tape segment viewed; and (d) the quality of the video tape and any suggestions for improving the picture or sound clarity.

Monthly segments of the Viewing Record Sheet calendar were drawn up by the investigator indicating the days for video taping and viewing as well as the date for that month's cooperative feedback session. These monthly calendars were posted on the door to the viewing room at the beginning of each month to serve as a reminder to the teachers. Teachers were encouraged to book viewing time in advance, by initialling the time period desired for viewing. A further viewing reminder was employed. The investigator posted a sign on the viewing room door stating that 'tapes are ready for viewing'.

The Goals-Guide-Behaviours evaluation strategy. The Goals-Guide-Behaviours evaluation strategy involved the teachers in a repeated series of six distinct activities occurring within a 4 week period. Six activities which are described below, were repeated five times for the present research.

(a) One 10-minute segment of video tape of each teacher's classroom behaviour was obtained on each of the first 3 days of video taping.

(b) The investigator conducted a short meeting with the teachers on the day after the first 30 minutes of video tape

had been filmed. The list of behaviours associated with one of the programme goals identified earlier was distributed. At this meeting the investigator questioned the teachers about their understanding of the meanings of the various teacher behaviours associated with the specific programme goal under consideration. This questioning was an attempt to check on the reliability of the lists of teacher behaviours. The agreed list of behaviours associated with a programme goal was subsequently posted on the wall in each of the four areas of the preschool where filming occurred for the teacher's easy reference while carrying out the programme.

(c) The teachers had, on the average, 7 school days during which they were expected to view the one 10-minute segment of video tape randomly selected by the investigator from the first 30 minutes of video tape obtained. On the dittoed list of behaviours associated with the goal under consideration distributed to each teacher, the investigator provided the date-letter-code and tape count location of the 10-minute segment on the randomly assigned video tape reel which was to be viewed. The teachers were expected to examine the assigned tape segment in terms of the list of behaviours provided. Their subsequent presentations at the cooperative feedback session were to be based on how they had put the particular goal of interest into practice as evidenced on the tape. Teachers were encouraged to view the 10-minute segment as many times as desired.

(d) The second 30 minutes of video tape was obtained

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during the 3rd and 4th weeks of each month.

(e) The teachers then viewed the randomly selected 10-minute segment from this second set of video tapes within the allotted period of viewing days. On another copy of the dittoed list of behaviours distributed 2 weeks previously, the investigator provided the new date-letter-code and tape count location for each teacher's viewing. Again, the teachers were expected to examine the randomly assigned tape segment in terms of the list of behaviours distributed. Teachers were encouraged to look for further evidence of how they put the particular goal of interest into practice.

(f) At the end of the 4th week the teachers and the preschool director took part in the cooperative feedback session which was also video taped. Additional equipment was required for video taping these cooperative feedback sessions in order to ensure high quality voice reproduction. Two Electro-Voice 635A microphones, which were connected to a Shure Mixer, were placed on either side of the table at which the teachers sat during the session.

The investigator prepared and distributed copies, to all participants, of a tentative agenda for each cooperative feedback session within at least 24 hours of the session. The agenda indicated the time schedule of each of the topics to be considered. The basic structure of the four cooperative feedback sessions which occurred remained constant. However, each discussion focused on a different programme goal and the associated teacher behaviours. The order in which the four

programme goals were examined through the course of carrying out the evaluation strategy in this preschool was as follows: locus of control in January; interrelationships in February; representation in March; and creativity in April. See Appendix D for copies of the agendas for each of the four cooperative feedback sessions which occurred.

Thus, during January, the teachers viewed the two 10-minute segments in terms of the behaviours associated with the locus of control goal. During the first cooperative feedback session, in addition to each teacher's presentation of how she put the locus of control goal into practice, there was discussion on the appropriateness of the specific behaviours listed as well as additional means of implementing the locus of control goal in the classroom. During the months of February, March and April the teachers assessed their tapes against and focused cooperative feedback session discussions on the interrelationships, representation and creativity goals respectively. In May the teachers viewed their video tapes in terms of the behaviours associated with all four programme goals. After each cooperative feedback session, any revisions to the original list of behaviour criteria associated with the goal of interest were recorded by the investigator. These changes were incorporated into the lists of behaviours posted on the preschool walls, one copy in each of the four activity areas.

The final brainstorming session was held on June 2. The purpose of this session was twofold: (a) to give teachers a final opportunity to reconsider their four programme goal

definitions and the specific teacher behaviours associated with implementing each goal, and (b) to assess the value of the various procedural features of the Goals-Guide-Behaviours evaluation strategy in terms of its future usefulness in other settings. In addition, the teachers completed a questionnaire (see Appendix E) prepared by the investigator, which obtained their appraisal of the degree to which the components of the evaluation strategy had influenced their teaching behaviours as well as their suggestions for changes in the evaluation strategy. This session was recorded on audiotape.

Coding tapes with two observational systems. The 5 hours of video tape records on each teacher's classroom behaviours were coded by two naive observers, the second observer serving as the check on the main observer's reliability. These observers had no information as to the purpose or the format of the Goals-Guide-Behaviours evaluation plan.

The investigator developed two different observational systems for coding each 10-minute segment of video tape. Each was based on the same list of teacher-behaviour criteria but somewhat different types of observational data were obtained. Prior to drawing up these systems in final form, the investigator distributed copies to the teachers for their review. This served as a check on the validity of the observational items. The teachers agreed that these observational items were accurate representations of the list of behaviours associated with each of their programme goals. One observational format used, the Sign System, consisted of abbreviated

descriptions of all of the behaviours associated with each of the four programme goals under consideration. All the behaviour items were listed under the specific goal name on a single coding sheet (see Appendix F). The other observational format, the Category System, was composed of two different coding sheets. One coding sheet consisted of distinct groupings of the behaviours under locus of control and representation which the investigator developed from the original lists of behaviours associated with these goals (see Appendix G). The investigator based the second coding sheet upon the behaviours associated with interrelationships and creativity goals (see Appendix H).

After testing out the meaningfulness of varied time unit lengths for breaking down the individual 10-minute segments and coding the occurrence of specific teacher behaviours within these segments, the investigator chose a 2-minute time unit for the three observational systems developed.

In using the Sign System, the observer recorded the occurrence, on the first occasion only, of specific behaviour items observed in each 2-minute portion of video tape. He checked off the square assigned to the behaviour that occurred in the appropriate time column, only once. The squares for observational items which did not occur were left blank. There were five time columns for each behaviour, each representing 2 minutes of the full 10 minutes of video tape per teacher. Thus the observer would use a fresh Sign System coding sheet for each 10-minute video tape segment for each teacher.

The Two Category System observation coding sheets, which were used separately, also had five time columns, each representing a 2-minute portion of a single 10-minute video tape segment on one teacher. For each 2 minutes of viewing the observer recorded the one category of teacher behaviour under each of the two goals per Category observation coding sheet which predominated during that time unit. The observer was instructed to check off the additional category of "other" provided on each of the two Category coding sheets only if there was no evidence of any of the listed behaviour groupings on the video tape. The observer was expected to comment on what had occurred during any 2-minute segment, which had been recorded as "other".

All 30 10-minute video tape segments per teacher were coded in terms of each of the three different observational formats: The five 1-hour tapes per teacher were randomly ordered for the coding to be conducted by the main observer. The second observer coded 4 hours of video tape, 1-hour of video tape on each teacher. The specific tapes coded by the second observer were chosen because they occurred at the beginning, in the middle, and at the end of the randomly assigned sequence of one hour tapes coded by the main observer.

The order in which the three observation formats were used with each 10-minute video tape segment was also randomly assigned. The observers were given an observation record sheet drawn up by the investigator which specified the actual

sequence of tape and 10-minute segments to be coded as well as the order in which the observational systems were to be used for each 10-minute segment per teacher.

The observers learned to use the three observation systems reliably by practising on 2 hours of 10-minute video tape segments in which all the teachers were represented. These 2 hours of so-called training video tape were filmed by the investigator during a week in early March when the teachers were expected to be viewing their tapes. The observers spent approximately 8 hours coding the training tapes together and discussing their choices of behaviours or categories that they recorded had occurred. This procedure assisted them in gaining a shared understanding of the meanings of each behaviour item on the Sign System coding sheet and of each category on the two Category System coding sheets. In this manner they increased their inter-rater reliability to an average of 0.85 prior to beginning the coding of actual tapes of interest.

Design

The Goals-Guide-Behaviours self-evaluation procedure provided each of four teachers with a total of 10 bimonthly opportunities for video tape feedback on their own teaching behaviours. On each self-viewing occasion, a teacher examined one 10-minute video tape segment filmed during the previous week. All teachers employed similar guidelines for judging their own video taped teaching behaviours. These guidelines consisted of the teachers' own descriptions of how they would like to implement their programme goals.

All of the 5 hours of video tape filmed on each teacher was coded. Each set of explicitly defined teaching behaviours associated with the four programme goals was employed as the behaviour criteria for coding the video tape. The Sign System, developed for observational coding of the video tape, consisted of 36 observational items, grouped under the four programme goal categories the teachers had described. The two Category System observational coding sheets together consisted of 18 observational items. Thus a total of 54 different frequency counts, one per observational item, were obtained for each of the 30 10-minute video tape segments for each teacher.

The research design consisted of 54 dependent variables and the following four independent variables: (a) week, a within -subjects variable with 10 levels; (b) monthly goal period, a within -subjects variable, with four levels; (c) teacher, a between -subjects variable, with four levels; and (d) area, a within -subjects variable, with four levels. The four teachers were video taped on three occasions during each of 10 weeks, in each of four areas of activity in the preschool. Weeks two to nine were further grouped into the sequence of four pairs of weeks, with each pair identifying one of the four monthly goal periods. During each of these two week periods the video taped feedback experiences and the cooperative feedback sessions were conducted with reference to one of the four different goal description guidelines in the following order: (a) locus of control, (b) interrelationships, (c) representation, and (d) creativity. The observational data

obtained consisted of frequencies of occurrence of the full range of teaching behaviours described by the teachers as the means of implementing these four programme goals.

Hypotheses

This research has attempted to answer questions related to both the methodology of the Goals-Guide-Behaviours self-evaluation strategy and to the impact of the various procedures upon the preschool teachers' classroom behaviours. With regard to the numerous methodological concerns, discussed earlier, in conducting educational evaluative research, an attempt was made to test the feasibility of an evaluation procedure consisting of: (a) an initial brainstorming session for the entire staff for developing explicit definitions of programme goals and descriptions of how they might be implemented in the classroom; (b) the filming of preschool teachers' teaching behaviours on video tape, on a regular basis, in all areas of teaching activity; (c) the teachers' involvement in bimonthly assessments of their own video taped teaching behaviours employing their predetermined lists of behavioural guidelines as the frame of reference; and (d) four staff cooperative feedback sessions to encourage interchange on assessments of one's own video taped teaching behaviours as well as to provide opportunities for showing examples of specific teaching behaviours in action.

Since the assessment of the impact of these procedures upon the teachers' behaviours in the classroom was the investigator's chief concern, an attempt was made to test out the following predictions about the procedures.

Hypothesis one. Since video tape feedback on teaching behaviours provides a teacher with an opportunity for self-evaluation, it was expected that teachers' judging their teaching behaviours against behavioural guidelines would increase the frequencies of occurrence of those behaviour criteria in subsequent classroom performance. Research on the use of video taped feedback by teacher trainees (Bedics and Webb, 1971; McDonald and Allen, 1967; Salomon and McDonald, 1970) as well as employed teachers (Ellett and Smith, 1975; Jensen, 1968) using a predetermined set of behaviour criteria, has proven its effectiveness. Further, researchers have provided evidence of changes in teachers' behaviours brought about by the teachers' attempts to reduce the discrepancy between their own videotaped classroom behaviours and a set of explicit behaviour criteria (Flanders, 1970; Good and Brophy, 1973; Tuckman, 1976). It was therefore expected that teachers' repeated comparisons of their video taped teaching performance with previously established lists of teacher behaviour criteria, might increase the frequencies of those teaching behaviours in the classroom.

Hypothesis two. It was expected that the frequencies of occurrence of those behavioural guidelines associated with each of the four programme goals would increase during the month in which those behaviours served as the guidelines for judging video taped feedback. Educational researchers emphasize the value of allowing teachers to evaluate their teaching behaviours in terms of their own descriptions of behaviour criteria developed

for their own programme (Flanders, 1970, Simpson, 1971). This investigator chose to design the self-evaluation procedure such that the behavioural guideline for viewing would change monthly. During the first four months of the procedure the descriptions of explicit teaching behaviours associated with each of the four programme goals were employed individually, in turn, as the behavioural guideline for viewing and as the focus of discussion for each cooperative feedback session. During the fifth month the teachers judged their teaching behaviours on the two final 10-minute video tape segments with reference to all four programme goals. It was expected that the monthly change in the goal on which the teachers were focusing might bring about monthly changes in the teachers' classroom behaviours. The investigator expected that the teacher behaviours associated with each goal would attain their highest frequencies of occurrence during that month in which the goal was the frame of reference for viewing videotapes and for the cooperative feedback session.

Hypothesis three. Because the provision of model video taped behaviour has been found to enhance the effectiveness of video taped feedback for teachers (Rutherford, 1973), it was expected that the teachers' sharing of examples of their own video taped teaching behaviours during the cooperative feedback sessions, might further increase the frequencies of the teaching behaviour criteria discussed at the cooperative feedback sessions.

Data Analyses

Assessment of inter-observer reliability. The inter-observer reliability values were calculated to determine the degree to which the main observer remained consistent in his manner of coding the 20 hours of video tapes. For each 10-minute segment coded by both observers, the percentages of the number of similar responses as well as dissimilar responses on the observational coding sheets by the two observers were obtained. Three average percentage values for each hour of video tape were calculated representing the degree of observer agreement in the use of the three observational coding sheets. The overall mean of the percentages represented the degree of consistency maintained by the main observer through the entire observational coding period.

Factor analyses of the dependent variables. Due to the large number of dependent variables being measured in this research, it was decided to employ principal component factor analysis with iteration for the purpose of data reduction (Kim, 1975). The goal of the factor analyses was to account for a large percentage of the total variance in the numerous dependent variables with a small number of factors. It was hoped this would provide a more meaningful interpretation of the findings. Statistical data reduction is judged to be effective when approximately one-fourth the number of factors as there are original variables account for between 50 and 75% of the total variance (Overall and Klett, 1972, p.109). Varimax orthogonal rotation of the factor matrix was employed in the attempt to calculate a good simple structure for each factor (Kim, 1975, p. 485).

The factors obtained represented groupings of dependent variables both within and across the four goal categories. Thus the degree of interdependence between the range of teaching behaviours could be examined. Two factor analyses were conducted separately, one on the Sign System observational data, and the other on the Category System observational data.

An examination of the frequencies obtained for each of the dependent variables revealed that nine of the Category System and eight of the Sign System variables included more than 75% zero values. Because of the very low variance in these variables, they were excluded from the factor analyses. The choice to exclude these 17 variables took into consideration the assumption of normality for the distribution of values to be included in a factor analysis. Furthermore, the linear dependency between these dependent variables, due to their large proportion of zero values, might have produced a less interpretable set of factors or might have resulted in a failure to produce any factor analysis. Thus for the purpose of producing as meaningful and interpretable a set of factors as possible, the factor analyses were calculated on 37 of the 54 dependent variables.

χ^2 test for independence on relatively infrequent dependent variables. From an examination of the distribution of the relatively infrequent dependent variables across the four areas in the preschool in which teachers were video taped, it appeared that their degree of occurrence was influenced by the area. In an attempt to test out the degree to which the teachers' behaviours were independent of area, with respect to these very infrequent

dependent variables, a one-way χ^2 test for independence on the four areas was employed. One criterion for conducting this test was that for a single dependent variable there be at least 20 observations recorded. This cut off point of 20 was essential to ensure that the assumption of an expected value of at least five could be calculated for each of the four cells (Siegel, 1956, p. 178).

Only seven of the infrequent dependent variables had at least 20 observations. Thus a χ^2 test for independence was calculated on each of these dependent variables. Because the possibility of obtaining χ^2 values whose probability exceeds chance increases as more individual χ^2 tests are conducted, the proportion of significant χ^2 values were obtained and compared to the number of significant χ^2 tests that would occur by chance alone.

Canonical correlations between Sign and Category observational systems. One canonical correlation or R was calculated on the data obtained by the two observational systems to determine the degree of relationship between the Sign System and the Category System observational formats. The intercorrelation between the two data sets was represented in the pairs of canonical variates derived for each set of variables. Each set of weights from which the canonical variates were derived accounted for a maximum amount of the relationship between the Sign and Category System data. The square of the canonical correlation or R^2 between the two sets of canonical variates (also called the eigenvalue) represented the amount of variance

in the first canonical variate set that was accounted for by the second canonical variate set (Warwick, 1975, p. 517). Since the Sign and Category Systems were both employed to code all of the 20 hours of video tape on teachers behaviours, the canonical correlation provided a measure of the reliability of these two systems, that is, the degree to which one system could predict the scores for the other system.

A second canonical correlation was calculated to determine the relationship between the two sets of factor scores derived from the factor analysis of the Sign System and the Category System observational data. An informal comparison of the two canonical correlations - one based on raw data and the other based on factor scores - was made. This was achieved through a comparison of the R^2 values. Some loss of variance explained should be expected using factor scores as opposed to raw data. The actual proportion of variance lost through factoring was calculated by subtracting R^2 factor (the eigenvalue of the first set of canonical variates calculated on the two sets of factor scores) from R^2_{raw} (the eigenvalue of the first set of canonical variates calculated on the two sets of raw data).

Multivariate analyses of variance. Two sets of four one-way multivariate analyses of variance were conducted to test the effect of each of the four independent variables. The first set of analyses was calculated on each of the factor scores for the Category System and for the Sign System. The rationale for obtaining factor scores from the factor analyses of the Category and Sign System observational items was to submit the factor

scores to multivariate analyses testing the effect of each independent variable. The purpose of these analyses was to determine which of the factors appeared to be contributing to any significant multivariate tests. Once the individual factors and the dependent variables which had weighted heavily on these factors, were identified, a new smaller set of selected dependent variables could be derived. The interpretation of the patterns of differences in the video taped teachers' behaviours could then be based upon the tests of the effects of the independent variables with reference to the smaller set of dependent variables. It was hoped that the reduction of the number of dependent variables would increase the accuracy and power of the multivariate analyses of variance (see Overall and Klett, 1972, p. 316).

The significance test of each multivariate analysis included a second independent variable which had been repeatedly measured in the design. The two so-called replication factors that were employed in the analyses were teacher and week. For example, in the test (a) for trends in 10 weeks and the test (b) of the overall effect of four monthly goal periods, a test of the effect of four teachers was included. It provided a test of teacher in terms of the variance which remained after the variance due to the effect of week or the effect of monthly goal period was removed. Similarly, the variance due to the teacher effect was removed when the tests of the other two independent variables were calculated. In the tests of the overall effect of (c) four teachers and (d) four areas, the

inclusion of a test of the effect of 10 weeks provided a test of week in terms of the variance which remained after the variance due to the effect of teacher or the effect of area was removed. Similarly the variance due to the week effect was removed when the other two factors were tested. The use of such a complete least squares or general linear model analysis, adjusting each effect for its relationship to the other effects in the model, has been suggested as an extension of the analysis of variance (Overall and Spiegel, 1969). Such an analysis is appropriate for the present data since the repeated measures obtained on all independent variables would be correlated. The differences across the four teachers were expected to contribute somewhat to the variability in the dependent variables. The mean frequencies of those dependent variables which contributed to the significant teacher effect were presented graphically. This allowed for a comparison of the four teachers' video taped behaviours across the 10 weeks for each dependent variable.

From an examination of the tests of the effects of week, monthly goal period, teacher and area which were significant at $p < .05$, the set of Category and Sign System factors were identified which had contributed to making the overall tests significant. If univariate F tests on these factors were significant at $p < .05$, the dependent variables associated with each of the factors that appeared to be contributing to the significant overall effects were combined to form a new

raw data set. It included seven Category System variables and 20 Sign System variables, which is exactly one-half the total number of original dependent variables in the design. A duplicate set of four one-way multivariate analyses on the trends across weeks, monthly goal periods, teachers and areas were conducted on this reduced data set. The dependent variables which contributed to significant multivariate tests of each independent variable were identified. The patterns of mean frequencies (which were observed on the video tapes) for the dependent variables were identified. These patterns were interpreted to provide explanations for the significant multivariate tests of the independent variables.

The number of times teachers viewed each week's video tapes.

The totals of the number of times the teachers viewed each of the randomly selected 10-minute video tape segments were analyzed in a univariate analysis variance. The purpose of the analysis was to determine whether the range of total frequencies of viewing each segment differed with a greater than chance probability across the 10 weeks. Thus the independent variable, week, had 10 levels, and each level had four frequencies per cell.

Teachers' rankings of components of the evaluation strategy.

The teachers' responses to question two on the questionnaire distributed at the final brainstorming session (see Appendix E) were analyzed in a one-way univariate analysis of variance. The purpose of the analysis was to determine whether the range

of rankings assigned to the six procedures by the teachers differed with a greater than chance probability. The teachers were asked to rank the impact of six components of the Goals-Guide-Behaviours evaluation strategy upon their teaching behaviours. They were to assign a different rank to each component. Thus the independent variable, component, had six levels, and the four responses per cell ranged from one to six.

The immediate impact of discussing or viewing video tapes of specific teacher behaviours at the cooperative feedback sessions. An attempt was made to determine whether the experience of discussing one goal's behavioural guidelines at each cooperative feedback session influenced the teachers' subsequent frequencies of performing these behaviours. All of the teaching behaviours that were discussed were assigned a Sign System observational item label in order that the mean frequencies of these Sign System dependent variables might be examined. A comparison was made of the mean frequencies observed during the week of video taping prior to each cooperative feedback session with those observed during the week that followed the cooperative feedback sessions. The mean frequencies were calculated across the four teachers and the three 10-minute video tape segments per week. Thus, the comparison of the locus of control dependent variables' mean frequencies was made between those observed on weeks two and three. The other comparisons were as follows: between weeks four and five for the interrelationships dependent variables; between weeks six and seven for the representation dependent variables; and between weeks eight and nine for the creativity dependent variables.

A more detailed comparison was made of individual teacher's mean frequencies of performance of those dependent variables describing the types of teaching behaviours presented by an individual teacher on her own video tapes. Each portion of video tape that was shown by an individual teacher was assigned a Sign System dependent variable label. An attempt was made to determine whether the experience of hearing another teacher's description of her impressions of viewing certain of her own teaching behaviours on video tape would influence the frequencies of occurrence of this teaching behaviour on the teachers' subsequent video tape records.

Results

The complete data set of this research is included in the Social Science Data Archive of Carleton University. This investigator's purpose in offering the data to the Data Archive was to provide the means whereby any interested students, researchers or faculty might conduct further statistical analyses on the data. The data file exists in the form of an SPSS [Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975)] system file. For each of the 120 cases making up the data set there are 54 frequency values and 19 factor scores. Descriptions of the levels of each of the four independent variables, the 54 dependent variables and the 19 factors are also included. Advice on how to access the file can be obtained from the Data Archivist, Department of Sociology and Anthropology, Carleton University, Ottawa.

(a) Assessment of Inter-observer Reliability

A second observer, employed as a double check on the main observer's reliability coded four out of the total of 20 hours of video tape. Table 1 includes the three average percentage values, representing the degree of inter-observer agreement, for each hour of video tape. The formula used for calculating these percentage values was the same as that used by Wright (1975, p.18), "the total number of agreements $\div$ the total number of agreements + disagreements $\times$ 100", in terms of only those observational items that were observed to occur. The overall mean inter-observer reliability percentage values for each of the three different observational coding sheets were: (a) 87.18% on the Sign System; (b) 85% on the Category System combining locus of control and representation; and (c) 85.83% on the Category System combining interrelationships and creativity. On the basis of the high percentage values demonstrating the high degree of agreement between the two observers in their coding of the video tape, it was concluded that the main observer was consistent in his manner of coding the 20 hours of video tape.

(b) Factor Analyses of the Dependent Variables

A principal components factor analysis, requiring more than 25 iterations, produced a varimax rotated factor matrix including 28 out of the total of 36 Sign System observational items. Eight items from the Sign System observational format (see Appendix F) were excluded from the factor analysis because

Table 1

Average Percentage Values Representing the Degree
of Inter-observer Agreement per Hour of Video Tape

Observational Coding Sheets			
Tape	Sign System	Category System	
	Representation	Locus of Control	Interrelationships
		Creativity	
1	89.8	91.7	88.3
2	84.6	86.7	80.0
3	86.6	78.3	86.7
4	87.7	83.3	88.3

their total frequencies included more than 75% zero values. The actual item numbers of the excluded dependent variables were (a) locus of control 1, 4, 5, and 12, (b) interrelationships 2, 7, and 10, (c) representation four. Thus the total number of observational items included in the factor analysis of the Sign System dependent variables was (a) 10 locus of control, (b) seven interrelationships, (c) six representation, and (d) five creativity.

The largest factor solution, producing 28 factors revealed that half that number of factors, that is the first 14 factors, accounted for 78.7% of the variance in the data. The first seven factors, which are one-quarter the size of the original set of variables, accounted for 53.6% of the variance. According to the criterion for judging the effectiveness of factor analysis for data reduction, the number of factors which account for 50 to 75% of the total variance should be approximately one-quarter the size of the original data set. Since the factor analysis on these 28 Sign System dependent variables did meet this criterion, this procedure was judged to be effective for the purpose of data reduction.

The factor analysis on these 28 variables was calculated to produce 14 factors accounting for 100% of the variance. Table 2 provides the breakdown of factors including each factor's name, the assigned goal label, the eigenvalue, and the percentage of variance accounted for in the data. A factor's goal label was determined from the goal categories of the items which had large loadings on that factor in the

Table 2

Descriptive Information on the 14 Factors
Produced by the Principal Components Factor Analysis
On 28 Sign System Dependent Variables

Factor				
Name	Description	Goal label	Eigenvalue	Percentage of Variance
1	Teacher responds to child's innovative creative action	Creativity	2.77591	16.9
2	Teacher encourages sustained experiences with media and the development of skills	Creativity	2.46573	15.0
3	Teacher explains effect of child's action on others <u>vs</u> teacher describes object's representation	Interrelationships	2.14115	13.1
4	Teacher acknowledges and comments on child's individuality and own verbal expression	Representation	1.59947	9.8
5	Teacher helps child learn to predict effect of actions <u>vs</u> teacher repeats child's words to ensure full understanding	Representation	1.21543	7.4
6	Teacher encourages cooperation in use of property and in planning <u>vs</u> teacher appreciates and helps child appreciate own initiative	Locus of Control	1.03087	6.3

Table 2 (continued)

Factor		Goal label	Eigenvalue	Percentage of Variance
Name	Description			
7	Teacher communicates with supportive and encouraging gestures and words	Locus of Control	.98481	6.0
8	Teacher provides language to help child's verbal expression	Representation	.91937	5.6
9	Teacher encourages child's sustained involvement in an activity through verbal and nonverbal communication	Interrelationships	.74235	4.5
10	Teacher explains meaning of others' representations and creative expressions	Representation	.69679	4.2
11	Teacher encourages child's understanding of other's verbal and emotional expressions and situational involvements	Interrelationships	.60007	3.7
12	Teacher suggests more adaptive behaviour for a disruptive child	Locus of Control	.50223	3.1
13	Teacher encourages child to patiently wait turn vs teacher encourages child's initiative in any form	Locus of Control	.42282	2.6

2

MICROCOPY RESOLUTION TEST CHART
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Table 2 (continued)

Factor				
Name	Description	Goal label	Eigenvalue	Percentage of Variance
14	Teacher responds to child's preferences and repeats child's words to ensure full understanding	Locus of Control	.30056	1.8

varimax rotated factor matrix. The predominant goal category became the goal label. The percentage of variance accounted for by the factors with similar goal labels were summed for each set of factors to determine the amounts of variance accounted for by each goal label. The percentages obtained were (a) 19.8% by locus of control factors, (b) 21.3% by interrelationships factors, (c) 27.0% by representation factors, and (d) 31.9% by creativity factors.

A principal components factor analysis requiring six iterations, produced a varimax rotated factor matrix including nine out of the total of 18 Category System observational items. The number of dependent variables excluded from each of the four goal categories, due to their total frequencies of more than 75% zero values was as follows, (a) four locus of control, (b) two interrelationships, and (c) one creativity. The description of the observational items included in the Category System observational format can be found in Appendices G and H. The item numbers of those dependent variables that were excluded from the factor analysis were (a) locus of control 1, 2, 5, and 6, (b) interrelationships three and four, and (c) creativity three. Thus the number of items included in the factor analysis of the nine Category System dependent variables from each goal category was (a) two locus of control, (b) two interrelationships, (c) three representation and (d) two creativity.

The largest factor solution for these nine variables, producing nine factors, revealed that five factors had

eigenvalues greater than one and together accounted for 96.6% of the variance in the data. The first two factors, which are less than one-quarter the size of the original set of variables accounted for 53.6% of the variance. Therefore this factor analysis also met the criterion for effectiveness when employed for data reduction.

The factor analysis on the nine Category System dependent variables was calculated to produce five factors accounting for 100% of the variance. Table 3 provides the breakdown of factors including each factor's name, the assigned goal label, the eigenvalue and the percentage of variance accounted for in the data. The total percentages of variance accounted for by each of the goal labels were (a) 14.4% by the locus of control factor, (b) 36.2% by the representation factors, (c) 29.5% by the interrelationships factor, and (d) 19.9% by the creativity factor.

(c) χ^2 Test for Independence on Relatively Infrequent Dependent Variables

The χ^2 test for independence was employed on seven of the 17 dependent variables, excluded from the factor analysis, which achieved a total frequency of at least 20 occurrences. The purpose of these analyses was to determine whether the frequencies of the teachers' behaviours, summing over the four teachers, were independent of the area of activity in the preschool. Table 4 presents the total frequencies of occurrence for each of these seven relatively infrequent dependent variables as well as the χ^2 values obtained on each test conducted. Of the seven one-by-four χ^2 tests

Table 3

Descriptive Information on the Five Factors
Produced by the Principal Components Factor Analysis
On Nine Category System Variables

Factor				
Name	Description	Goal label	Eigenvalue	Percentage of Variance
1	Teacher strengthens relationship with child <u>vs</u> teacher promotes mutual cooperation between child and others	Interrelationships	2.46170	29.5
2	Teacher provides child with needed verbal expressions to promote language <u>vs</u> teacher encourages child's use of representation	Representation	2.01668	24.1
3	Teacher promotes child's skill development <u>vs</u> teacher praises, acts on child-initiated innovative behaviour	Creativity	1.66363	19.9
4	Teacher values child's individuality, encourages self-value <u>vs</u> teacher responds to child's own verbal expressions of preferences or personal experiences	Locus of Control	1.20034	14.4
5	Teacher explains relationship between child's action and impact <u>vs</u> teacher promotes child's verbal expression	Representation	1.01217	12.1

Table 4

Values of χ^2 Tests of Independence on
Total Frequencies of Seven Relatively Infrequent
Dependent Variables Across Four Areas of Activity

Variable Name	Area					χ^2	df
	Quiet	Active	Art	Snack			
Sign System Dependent Variables							
Locus of Control	5	12	19	5	1	20.41***	3
Interrelationships	7	9	13	11	0	11.97**	3
Interrelationships	10	7	11	9	4	3.45	3
Representation	4	4	7	9	6	2.00	3
Category System Dependent Variables							
Locus of Control	1	7	2	11	2	10.36*	3
Locus of Control	2	10	20	2	4	21.78***	3
Creativity	3	1	9	10	1	13.86**	3

* $p < .05$

** $p < .01$

*** $p < .001$

for independence, one was significant at $p < .05$, two at $p < .01$ and two at $p < .001$. Since the proportion of significant χ^2 tests that would occur by chance alone is 0.05, it is very unlikely that any of the five significant χ^2 tests was spurious. There were some consistencies between the relatively higher and lower total frequencies recorded for each of the five dependent variables in the four areas. The lowest frequencies were most often recorded in the snack area. The following types of teaching behaviours occurred most often in the active area: a teacher's allowing a child time to resolve a task difficulty or social disagreement, a teacher's extending the play to include more children, and a teacher's resolution of prolonged disruption. The other two categories of teaching behaviours, a teacher's providing directive guidance at a task, and a teacher's exposing the children to the creative expression of others were observed to occur most often in the art area.

(d) Canonical Correlations Between the Sign and Category
Observational Systems

Table 5 presents the values of the substantially high positive and negative correlation coefficients between the Sign System and Category System observational items as found on the overall correlation matrix. It is evident that the similar goal categories in each of the two observational formats were coding similar types of teacher behaviours observed on the video tape since the majority of the correlations were between similar goal category items. Out of the total of 32 correlation coefficients, 21 were explaining the interrelationships between similar goal categories. An

Table 5

Substantially High Positive and Negative Correlation Coefficients
between the Sign System and Category System Observational Items

Sign System	Category System									
	a	b	c		d		e			
	CLOC1	CLOC2	CINTER1	CINTER2	CINTER3	CREP1	CREP2	CREP3	CCRE1	CCRE2
f										
SLOC1	.38979									
SLOC2		.45092	.47003	.46812						
SLOC5		.49448	-.50342	.47375						
SLOC6					.41055					
SLOC11									-.31004	
SINTER3		.37435	-.42219	.38109						
SINTER4		.34608	-.33558	.3120						
SINTER7					.54118					
SINTER8		.42886	-.49709	.48166	.73139					
SINTER9		.32316								
d										
SREP1	.50299					.49307		-.37873		
SREP2						.38455		-.41681		
SREP5							.49040			
e										
SCRE1									.51090	-.52795
SCRE2									.37527	-.41510
SCRE4										.3384

a C represents Category System

b LOC1 represents locus of control item one

c INTER1 represents interrelationships goal item one

d REP1 represents representation goal item one

e CRE1 represents creativity item one

f S represents Sign System

examination of the descriptions of the correlated observational items (see Appendices F, G, and H) provided evidence of the similarity of these items. For example, SLOC1 refers to a teacher's attempt to help a child focus attention on one aspect of a task with which the child is experiencing difficulty, or to provide a strategy for completing the task. The correlation between SLOC1 and CLOC1 is .38979. The description of CLOC1 on the Category System observational coding sheet (see Appendix G) refers to the teachers' directive guidance toward the child through the provision of a new strategy for completing a difficult task. Therefore, it might be concluded that these two observational items coded similar teachers' behaviours from the video tape.

The canonical correlation between the coded video tape data produced by the two observational formats was calculated for the purpose of obtaining a measure of the reliability between these two systems. The canonical correlation was calculated to determine the degree of relation between 36 Sign System and 15 Category System observational items. Three of the Category System items, specifically interrelationships/ item number four, and other items one and two (see descriptions of these items in Appendices G and H), had to be excluded from the correlation because of linear dependency problems. The inclusion of these items prevented the calculation of canonical variates. One possible cause of the excessive linear dependency could be the very high percentage of zero values which was 95.8% for each of these items.

The canonical correlation summary table, presented in Table 6 indicated that the shared variance in the data of each of the two observation systems was accounted for by five pairs of derived

Table 6

Summary Table of the Canonical Correlation
Between the 36 Sign System and 15 Category
System Observational Items

Canonical Variate Pair	Eigenvalue ^a	Canonical Correlation ^b	Chi-Square	df	Significance p less than
1	.79047	.88908	990.594	540	.0001
2	.75475	.86876	843.682	490	.0001
3	.72174	.84955	711.567	442	.0001
4	.69049	.83095	591.323	396	.0001
5	.63764	.79853	481.085	352	.0001

^a the proportion of variance shared by each pair of canonical variates

^b the square root of the eigenvalue, the meaning is equivalent to a simple product-moment (Pearson) correlation coefficient (Warwick, 1975, p. 522)

canonical variates. Table 6 provides the eigenvalues and canonical correlations for each pair of canonical variates. The chi-square tests of significance on each pair of canonical variates revealed that five pairs of significant canonical variates had been derived. This was interpreted to mean that each pair of canonical variates accounted for an independent proportion of the correlation that existed between the two sets of data. Thus the two sets of raw data were significantly correlated.

A second canonical correlation was calculated on the two sets of factor scores produced by the two factor analyses, the one on the Sign System observational items and the other on the Category System observational items. The degree of relation between the five Category System factors and the 14 Sign System factors, was examined through the calculation of the canonical correlation between the set of factor scores associated with each set of factors. The main purpose of this second canonical correlation was to compare the eigenvalues obtained on the factor scores with those obtained on the raw data. Table 7 presents the summary table of the canonical correlation between the Category and Sign Systems' factor scores which includes the eigenvalues for each pair of canonical variates. The subtraction of the eigenvalue for the first pair of canonical variates (.54008) associated with the factor scores from that obtained for the first pair of canonical variates associated with the raw data (.79047) indicated that the proportion of the variance in the raw data sets that was lost through the use of factor analyses was .25039. Therefore the raw data explains approximately 25% more variance in the dependent variables than do the factor scores.

Table 7

Summary Table of the Canonical Correlation
Between the 14 Sign System Factors
and the Five Category System Factors

Canonical Variate Pair	Eigenvalue	Canonical Correlation	Chi-Square	df	Significance p less than
1	.54008	.73490	247.995	70	.0001
2	.48149	.69389	162.557	52	.0001
3	.40168	.63378	90.31	36	.0001

The canonical correlation summary table on the factor scores provides the chi-square values of the tests of significance. The chi-square test on each of the three pairs of canonical variates was significant. These significant values were interpreted to mean that each pair of canonical variates shared an independent proportion of the significant correlation between the Category and Sign System factor scores.

(e) Multivariate Analyses of Variance Testing the Effects of the Independent Variables

The multivariate analyses on the factor scores. The first two sets of four similar multivariate analyses of variance were calculated on the 10 Sign System factor scores and then on the five Category System factor scores. The purpose of these analyses was to determine which of the factors appeared to be contributing to any significant multivariate tests of the effect of an independent variable. The univariate analyses of variance whose F values obtained a probability less than .05 could then be considered as having contributed a proportion of the variance in the multivariate analysis which produced the significant results. Three analyses were set up to individually test the overall effect of (a) monthly goal period, (b) teacher and (c) area. The fourth analysis was a test for trends across the 10 weeks of video taping conducted in the Goals-Guide-Behaviours evaluation plan. Due to the fact that the levels of each of the independent variables were repeated at different rates in relation to the other independent variables it was decided that a complete least squares or general linear model analysis should be employed.

This analysis would provide a test for the overall effect of one independent variable, adjusting for its relationship to another effect which was listed as a second factor in the analysis. Therefore the analysis provided a test of the effect of each independent variable in terms of the variance contributed by that variable alone.

Moreover, another reason for the use of a general linear model analysis when testing the overall effect of area related to the unequal cell frequencies in the distribution of the four teachers across the four areas. Since the area rotation necessitated the teachers being video taped during three weeks in each of two areas, and during two weeks in each of the other two areas, the four teachers' video tapes were not all equally distributed across the four areas.

Table 8 provides the values of F, from tests of significance using Rao's approximation of Wilks' Lambda Criterion, the degrees of freedom and the probability values associated with each of the significant roots of the three multivariate analyses of variance tests of the effects of (a) monthly goal period, (b) teacher and (c) area. In the tests on the Category System factor scores, only the teacher and area effects obtained significant F values. It is noteworthy that the teacher effect produced only one significant root while the area effect produced three significant roots, the latter accounting for over 90% of the variance produced by the area differences. All the

Table 8

Multivariate Analysis of Variance Summary Table on the Tests of the Overall Effects of (a) Monthly Goal Period, (b) Teacher, and (c) Area Calculated on the Sign System and Category System Factor Scores

Effect	Test of Roots	F	df hypothesis	df error
Category System Factor Scores				
Monthly Goal Period	1 through 3	1.619	15	210.204
	2 through 3	.982	8	153
	3 through 3	.399	3	77
Teacher	1 through 3	2.404**	15	210.204
	2 through 3	1.044	8	153
	3 through 3	.723	3	77
Area	1 through 3	5.669***	15	210.204
	2 through 3	4.816***	8	153
	3 through 3	2.854*	3	77
Sign System Factor Scores				
Monthly Goal Period	1 through 3	1.685*	30	209.075
	2 through 3	1.560	18	143
	3 through 3	1.233	8	72
Teacher	1 through 3	1.538*	30	209.075
	2 through 3	1.307	18	143
	3 through 3	.343	8	72
Area	1 through 3	3.877***	30	209.075
	2 through 3	1.990*	18	143
	3 through 3	.904	8	72

* $p < .05$.

** $p < .01$.

*** $p < .001$.

tests on the Sign System obtained significant values for the first roots. Also, the second root in the test of the area effect was significant.

Table 9 provides the multivariate analysis of variance summary table of the test for linear, quadratic and cubic trends across the 10 weeks of video taping. The linear effect was significant with $p < .001$ in the tests on both the Sign System and Category System factor scores. The quadratic effect was significant only on the Sign System factor scores.

In order to be able to interpret the significant tests on the independent variables it was necessary to determine which factors were contributing towards the significant F values. From an examination of the univariate analysis of variance summary tables associated with each of the significant multivariate tests, those factors whose univariate F values obtained a probability less than .05 were identified. The Category and Sign System factors whose univariate F values were significant were listed in Tables 10 and 11 respectively. Along with each factor's number is the factor's goal label, a description of that factor, the values of F, the associated probability values, the degrees of freedom and the mean squares. Thus Tables 10 and 11 include the factors associated with the significant multivariate analyses of the tests of (a) monthly goal period, (b) teacher and (c) area.

The factors which seem to have contributed to the significant linear and quadratic trends across the 10 weeks are listed

Table 9

Multivariate Analysis of Variance Summary

Table of the Test of Linear, Quadratic

and Cubic Trends Across the 10 Weeks

of Video Taping on the Sign System and

Category System Factor Scores

Trend	Test of Roots	F	df hypothesis	df error
Category System Factor Scores				
Linear	1 through 1	5.75***	5	76
Quadratic	1 through 1	.470	5	76
Cubic	1 through 1	.764	5	76
Residual	1 through 5	1.444	30	306
	2 through 5	.949	20	286.329
	3 through 5	.700	12	257.013
	4 through 5	.396	6	214.704
	5 through 5	.163	2	156.000
Sign System Factor Scores				
Linear	1 through 1	6.015***	10	71
Quadratic	1 through 1	2.582**	10	71
Cubic	1 through 1	.925	10	71
Residual	1 through 6	.972	60	377.046
	2 through 6	.684	45	329.674
	3 through 6	.381	32	275.079
	4 through 6	.195	21	213.575
	5 through 6	.165	12	146.000
	6 through 6	.046	5	73.50

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 10

Univariate Analysis of Variance Summary Tables
for the Category System Factors that
Contributed to the Significant F Values of the
Multivariate Tests of the Effects of Three Independent Variables

Effect	Factor	Goal Label	Description	F ^a	Mean Square
Teacher	2	Representation	Teacher provides child with needed verbal expressions to promote language <u>vs</u> teacher encourages child's use of representation	7.201***	4.72
Area	1	Interrelationships	Teacher strengthens relationship with child <u>vs</u> teacher promotes mutual cooperation between child and others	3.505*	3.63
	2	Representation	(see above)	9.624***	6.31
	3	Creativity	Teacher promotes child's skill development <u>vs</u> teacher praises, acts on child-initiated innovative behaviour	6.455***	4.66
	5	Representation	Teacher explains relationship between child's action and impact <u>vs</u> teacher promotes child's verbal expression	3.221*	3.26

a all df's = 3, 80

* $p < .05$

*** $p < .001$

Table 11
Univariate Analysis of Variance Summary Tables
for the Sign System Factors that
Contributed to the Significant F Values of the
Multivariate Tests of the Effects of Three Independent Variables

Effect	Factor	Goal Label	Description	F	Mean Square
Monthly Goal Period	5	Representation	Teacher helps child learn to predict effect of actions <u>vs</u> teacher repeats child's words to ensure full understanding	4.187** ^a	1.943
	8	Representation	Teacher provides language to help child's verbal expression	3.148* ^a	2.311
Teacher	5	Representation	(see above)	5.623** ^b	2.522
	8	Representation	(see above)	3.487* ^b	2.710
Area	1	Creativity	Teacher responds to child's innovative creative action	8.607*** ^b	6.144
	2	Creativity	Teacher encourages sustained experiences with media and the development of skills	2.704* ^b	2.134
	5	Representation	(see above)	4.707** ^b	2.112
	6	Locus of Control	Teacher encourages co-operation in use of property and in planning <u>vs</u> teacher appreciates and helps child appreciate own initiative	16.023*** ^b	8.049

a df = 9, 80

b df = 3, 80

* p < .05

** p < .01

*** p < .001

in Table 12. The format of Table 12 duplicates that of Tables 10 and 11. Accompanying each factor number is the factor's goal label, a description of the factor, the F value and associated probability attained on the univariate F test, as well as the degrees of freedom and mean squares.

By combining the group of factors listed on Tables 10, 11 and 12, a composite list of all factors contributing to the multivariate tests of the effects of all four independent variables was produced. Four of the five Category System factors, namely 1, 2, 3 and 5 had contributed to the multivariate test of the overall effect of area. Factor two alone appeared to have produced the significant multivariate effect of teacher as well as the linear effect across weeks. Interestingly, factors two and five consist of teachers' representation activities, and factors one and three describe teachers' interrelationships and creativity activities respectively. The locus of control factor four did not obtain a significant univariate F value. Thus it might be stated that the differences across the levels of the significant teacher, area and linear effects might have been brought about by the differences in teachers' video taped representation goal behaviours. This pattern in the teachers' classroom behaviours will be considered further in the discussion section.

Eight of the 10 Sign System factors, namely 1, 2, 3, 5, 6, 8, 9 and 10 had contributed to at least one of the five multivariate analyses which had obtained significant F values. Both factors five and eight obtained significant univariate F values

Table 12

Univariate Analysis of Variance Summary Tables
for the Sign and Category System Factors that
Contributed to the Significant F Values in the Test
of Linear, Quadratic and Cubic Trends Across 10 Weeks.

Trend	Factor	Goal Label	Description	F ^a	Mean Square
Category System Factors					
Linear	2	Representation	Teacher provides child with needed verbal expressions to promote language <u>vs</u> teacher encourages child's use of representation	24.544***	16.113
Sign System Factors					
Linear	3	Interrelationships	Teacher explains effect of child's action on others <u>vs</u> teacher describes object's representation	6.012*	4.246
	5	Representation	Teacher helps child learn to predict effect of actions <u>vs</u> teacher repeats child's words to ensure full understanding	20.633***	9.256
	6	Locus of Control	Teacher encourages cooperation in use of property and in planning <u>vs</u> teacher appreciates and helps child appreciate own initiative	10.46**	5.254

Table 12(continued)

Trend	Factor	Goal Label	Description	F ^a	Mean Square
Sign System Factors					
Linear	8	Representation	Teacher provides language to help child's verbal expression	4.901*	3.808
	9	Interrelationships	Teacher encourages child's sustained involvement in an activity through verbal and nonverbal communication	12.157***	7.007
Quadratic	10	Representation	Teacher explains meaning of others' representations and creative expressions.	3.983*	2.29

a all df's = 1, 80

* $p < .05$

** $p < .01$

*** $p < .001$

in the multivariate tests of (a) the linear effect across weeks, (b) differences across the four monthly goal periods, and (c) differences across four teachers. The multivariate test of differences across the four areas, which obtained two significant roots, appeared to have been influenced also by Sign factor five, as well as factors 1, 2 and 6.

Sign factors five and eight describe teachers' behaviours associated with implementing the representation goal. Interestingly, both the significant multivariate tests of the monthly goal period and teacher effects were influenced only by these two factors five and eight. Factor 10, which had contributed to the quadratic effect across weeks, also described representation goal teacher behaviours.

The goal categories of the remaining Sign factors which had contributed to at least one of the significant multivariate tests showed an interesting pattern. Factors one and two, which contributed to the significant area effect only, described creativity goal teacher behaviours. Factors three and nine, which contributed only to the significant linear trend across weeks described interrelationships goal teacher behaviours. Finally, factor six, which described locus of control teacher behaviours, contributed to both the significant linear effect across weeks as well as the significant area effect.

It is noteworthy that a comparison of the Category and Sign factors which appeared to have contributed to all

the multivariate tests together showed that representation goal behaviours predominated among the factors (see Tables 10, 11 and 12).

The next logical step in the attempt to understand the patterns of differences in the video taped teachers' behaviours was to derive a new raw data set upon which a duplicate set of multivariate analyses of variance could be conducted. This new smaller set of selected dependent variables was made up of those Sign System and Category System observational items which had weighted heavily on the significant univariate Sign and Category factors discussed above. Tables 13, and 14 list those Category and Sign System factors, respectively, which contributed to the significant multivariate tests of the effects of the independent variables. The dependent variables which weighted heavily on these factors are listed alongside the factors with which they are associated. A brief description of each of these dependent variables as well as their factor loadings are also provided. Thus the reduced raw data set was composed of all those dependent variables listed on Tables 13 and 14. More specifically, there were seven Category System observational items, including two interrelationships, three representation and two creativity goal items. The 20 Sign System observational items consisted of five locus of control, five interrelationships; five representation, and five creativity items.

The multivariate analyses on the reduced raw data set.

The second two sets of four similar multivariate analyses of variance were calculated separately on the seven Category

Table 13

The Seven Dependent Variables Directly Associated with the
Four Category System Factors Which had Contributed to the
Significant Multivariate Tests of the Effects of the
Four Independent Variables

Factor	Dependent Variable		Factor loading
	Name	Description	
1	^a CINTER1 ^b	Strengthen teacher-child relationship	.98088
	CINTER2	Promotion of mutual cooperation	-.97481
2	^c CREP1	Encouragement in use of representation	-.96575
	CREP3	Promotion of verbal expression	.93434
3	^d CCRE1	Responsiveness to child individuality	-.92340
	CCRE2	Promotion of skill development	.92173
5	CREP2	Explanation of causality	.97915
	CREP3	Promotion of verbal expression	-.33093

a
C represents Category System

b
INTER1 represents interrelationships goal item one

c
REP1 represents representation goal item one

d
CRE1 represents creativity goal item one

Table 14

The 20 Dependent Variables Directly Associated with the
Eight Sign System Factors Which Had Contributed to the
Significant Multivariate Tests of the Effects of the
Four Independent Variables

Factor	Dependent Variable		Factor Loading
	Name	Description	
1	a b SLOC7	Teacher acknowledges child's presence, individuality	.3037
	SLOC10	Teacher encourages child's initiative	.37813
	c SCRE1	Teacher praises child's innovative behaviour	.73908
	SCRE2	Teacher and child appreciate child's action	.70771
	SCRE5	Teacher exposes child to others' creative expressions	.34697
2	SLOC11	Teacher encourages child's sustained activity	.72786
	SCRE3	Teacher encourages child's sustained experience with media	.43485
	SCRE4	Teacher helps child develop skills	.81953
3	SINTER8 ^d	Teacher encourages respect of others' needs, space	.45523
	SINTER9	Teacher explains effect of child's action	.88887
	e SREP5	Teacher helps child predict effect of actions	.33415

Table 14 (continued)

Factor	Dependent Variable		Factor Loading
	Name	Description	
3	SREP1	Teacher describes an object's representation	-.33704
5	SINTER1	Teacher develops trusting relationship with child	.48139
	SREP2	Teacher encourages imitative behaviour	.43282
	SREP5	Teacher helps child predict effect of actions	.60183
	SLOC9	Teacher encourages expression of feelings, ideas	-.33844
6	SLOC3	Teacher encourages material replacement after use	.65083
	SINTER5	Teacher encourages cooperation in planning, with property	.71465
	SLOC10	Teacher encourages child's initiative	-.31526
	SCRE2	Teacher and child appreciate child's action	-.33755
8	SREP7	Teacher provides language to help verbal expression	.84367
9	SLOC11	Teacher encourages child's sustained activity	.35502
	SINTER6	Teacher and child share nonverbal, verbal communication	.68927
	SREP1	Teacher describes an object's representation	.34655
	SCRE3	Teacher encourages child's sustained experience with media	.39464

Table 14 (continued)

Factor	Dependent Variable		Factor Loading
	Name	Description	
10	SREP3	Teacher explains meaning of others' representations	.65500
	SCRE5	Teacher exposes child to others' creative expressions	.55530

- a S represents Sign System
- b LQC7 represents locus of control item seven
- c CRE1 represents creativity goal item one
- d INTER8 represents interrelationships goal item eight
- e REP5 represents representation goal item five

System dependent variables and on the 20 Sign System dependent variables. Three analyses tested the effect of (a) monthly goal period, (b) teacher, and (c) area. The fourth analysis was a test for trends across the 10 weeks of video taping.

Table 15 provides the values of F from tests of significance using Rao's approximation of Wilks' Lambda Criterion, the degrees of freedom and the probability values associated with each of the significant roots of the first three multivariate analyses mentioned above. In the tests on the Category System dependent variables, the teacher effect obtained one significant root, and both the monthly goal period and area effects obtained two significant roots. In the tests on the Sign System dependent variables the area effect again obtained two significant roots and the monthly goal period and teacher effects obtained only one significant root.

Table 16 provides the multivariate analysis of variance summary table of the test for linear, quadratic and cubic trends across the 10 weeks of video taping. Both the linear and quadratic trends each obtained one significant root in the tests on the Sign System as well as the Category System dependent variables. The test of the residual effect also obtained one significant root for each of the two sets of dependent variables.

In order to be able to interpret all these significant tests it was essential to determine which dependent variables had contributed towards the significant F values. From an examination of the univariate analysis of variance summary

Table 15

Multivariate Analysis of Variance Summary Tables on the
Tests of the Overall Effects of (a) Monthly Goal Period,
(b) Teacher and (c) Area Calculated on the Reduced
Data Set of 27 Sign and Category System Dependent Variables

Effect	Test of Roots	F	df hypothesis	df error
Category System Dependent Variables				
Monthly Goal Period	1 through 3	2.567***	21	213.038
	2 through 3	1.882*	12	149
	3 through 3	.804	5	75
Teacher	1 through 3	1.678*	21	213.038
	2 through 3	.656	12	149
	3 through 3	.405	5	75
Area	1 through 3	4.659***	21	213.038
	2 through 3	3.255***	12	149
	3 through 3	1.366	5	75
Sign System Dependent Variables				
Monthly Goal Period	1 through 3	1.396*	60	182.825
	2 through 3	.874	38	123
	3 through 3	.763	18	62
Teacher	1 through 3	1.432*	60	182.825
	2 through 3	1.190	38	123
	3 through 3	.981	18	62
Area	1 through 3	3.034***	60	182.825
	2 through 3	1.559*	38	123
	3 through 3	1.096	18	62

* $p < .05$

*** $p < .001$

Table 16

Multivariate Analysis of Variance Summary Table of the Test of
Linear, Quadratic and Cubic Trends Across the 10 Weeks of
Video Taping on the Reduced Data Set of 27 Sign and
Category System Dependent Variables

Trend	Test of Roots	F	df hypothesis	df error
Category System Dependent Variables				
Linear	1 through 1	3.196**	7	74
Quadratic	1 through 1	3.106**	7	74
Cubic	1 through 1	1.151	7	74
Residual	1 through 6	1.538*	42	350.543
	2 through 6	1.028	30	316.219
	3 through 6	.871	20	272.233
	4 through 6	.537	12	217.538
	5 through 6	.116	6	152
	6 through 6	.005	2	76.5
Sign-System Dependent Variables				
Linear	1 through 1	1.961*	20	61
Quadratic	1 through 1	2.380**	20	61
Cubic	1 through 1	1.203	20	61
Residual	1 through 6	1.343*	120	360.006
	2 through 6	1.125	95	304.753
	3 through 6	.908	72	247.058
	4 through 6	.670	51	187.325
	5 through 6	.593	32	126
	6 through 6	.490	15	63.5

* $p < .05$

** $p < .01$

tables associated with each of the significant multivariate tests, those dependent variables whose univariate F values exceeded the α level of significance of .05 were identified. The Category and Sign System dependent variables whose univariate F values were significant in the tests of (a) monthly goal period, (b) teacher and (c) area were listed in Tables 17 and 18, respectively. Along with the name and description of each significant dependent variable are the F values, their associated probability values, their degrees of freedom and the mean squares.

Tables 19 and 20 provide the list of those Category and Sign System dependent variables, respectively, which have contributed toward the significant linear and quadratic trends and the residual effect in the test of trends across the 10 weeks.

From an examination of Tables 17 to 20 the investigator was able to compare the types of Category and Sign System dependent variables which had contributed to the significant multivariate tests of the effects of the four independent variables. Starting with the comparison of Table 17 and 18, each independent variable will be considered in turn in terms of the goal categories of the dependent variables which had contributed to the significant multivariate test. The differences across the four monthly goal periods were influenced by two representation Category System dependent variables. In terms of the Sign System dependent variables, two of the four which contributed to the significant monthly

Table 17

Univariate Analysis of Variance Summary Tables for the
Category System Dependent Variables that Contributed
to the Significant F values of the Multivariate
Tests of the Effects of Three Independent Variables

Effect	Dependent Variable		F ^a	Mean Square
	Name	Description		
Monthly Goal Period	b c CREP1	Encouragement in use of representation	6.544***	15.625
	CREP3	Promotion of verbal expression	7.683***	18.038
	Teacher CREP1	Encouragement in use of representation	4.859**	10.603
Area	CREP3	Promotion of verbal expression	9.097***	18.497
	CINTER1 ^d	Strengthen teacher-child relationship	4.289**	7.255
	CINTER2	Promotion of mutual cooperation	3.251*	4.822
	CREP1	Encouragement in use of representation	7.324***	16.030
	CREP2	Explanation of causality	3.683*	3.222
	CREP3	Promotion of verbal expression	14.277***	29.031
	CCRE1 ^e	Responsiveness to child individuality	4.614**	4.422
	CCRE2	Promotion of skill development	8.396***	10.355

a all df's = 3, 80

b C represents Category System

c REP1 represents representation goal item one

d INTER1 represents interrelationships goal item one

e CRE1 represents creativity goal item one

* $p < .05$

** $p < .01$

*** $p < .001$

Table 18

Univariate Analysis of Variance Summary Tables for the
Sign System Dependent Variables that Contributed
to the Significant F Values of the Multivariate
Tests of the Effects of Three Independent Variables

Effect	Dependent Variable		F ^a	Mean Square
	Name	Description		
Monthly Goal Period	b SLOC11 ^c	Teacher encourages child's sustained activity	3.333*	3.125
	SINTER1 ^d	Teacher develops trusting relationship with child	3.980*	2.736
	SREP1 ^e	Teacher describes an object's representation	4.329**	8.153
	SREP5	Teacher helps child predict effect of actions	3.162*	3.260
Teacher	SREP5	Teacher helps child predict effect of actions	6.489***	5.786
	SREP7	Teacher provides language to help verbal expression	3.270*	1.444
	SCRE5 ^f	Teacher exposes child to others' creative expressions	2.769*	.900
Area	SLOC3	Teacher encourages material replacement after use	5.00**	4.208
	SLOC10	Teacher encourages child's initiative	9.282***	20.189
	SINTER1	Teacher develops trusting relationship with child	4.751**	2.811
	SINTER5	Teacher encourages cooperation in planning, with property	22.741***	29.564

Table 18(continued)

Effect	Dependent Variable		F ^a	Mean Square
	Name	Description		
Area	SINTER8	Teacher encourages respect of others' needs, space	2.983*	1.964
	SREP1	Teacher describes an object's representation	3.279*	5.519
	SREP2	Teacher encourages imitative behaviour	4.204**	3.433
	SREP5	Teacher helps child predict effect of actions	4.595**	4.097
	SCRE1	Teacher praises child's innovative behaviour	5.028**	4.944
	SCRE2	Teacher and child appreciate child's action	8.238***	15.789
	SCRE3	Teacher encourages child's sustained experience with media	4.129**	5.230
	SCRE5	Teacher exposes child to others' creative expressions	7.556***	2.456

a all df's = 3, 80

b S represents Sign System

c LOC11 represents locus of control goal item 11

d INTER1 represents interrelationships goal item one

e REP1 represents representation goal item one

f CRE5 represents creativity goal item five

* $p < .05$

** $p < .01$

*** $p < .001$

Table 19

Univariate Analysis of Variance Summary Tables for the Category System
Dependent Variables that Contributed to the Significant F Values in the
Test of Linear, Quadratic and Cubic Trends Across 10 Weeks

Dependent Variable				
Trend	Name	Description	F ^a	Mean Square
Linear	^b CREP1 ^c	Encouragement in use of representation	4.755*	10.381
	CREP3	Promotion of verbal expression	7.905**	16.073
Quadratic	CREP1	Encouragement in use of representation	11.424***	24.942
	CREP3	Promotion of verbal expression	17.174***	34.921
Residual	CCRE1 ^d	Responsiveness to child individuality	2.531*	2.426
	CCRE2	Promotion of skill development	2.614*	3.224

a all df's = 1, 80

b C represents Category System

c REP1 represents representation goal item one

d CRE1 represents creativity goal item one

* $p < .05$

** $p < .01$

*** $p < .001$

Table 20

Univariate Analysis of Variance Summary Tables for the Sign System
Dependent Variables that Contributed to the Significant F Values in
the Test of Linear, Quadratic and Cubic Trends Across 10 Weeks

Trend	Dependent Variable		F ^a	Mean Square
	Name	Description		
Linear	^b SLOC7 ^c	Teacher acknowledges child's presence, individuality	5.255*	2.715
	SINTER1 ^d	Teacher develops trusting relationship with child	14.487***	8.572
	SINTER5	Teacher encourages cooperation in planning, with property	8.885**	11.55
	SREP5 ^e	Teacher helps child predict effect of actions	5.535*	4.935
	SCRE4 ^f	Teacher helps child develop skills	4.965*	1.076
Quadratic	SLOC7	Teacher acknowledges child's presence, individuality	5.781*	2.987
	SLOC11	Teacher encourages child's sustained activity	11.801***	10.621
	SINTER1	Teacher develops trusting relationship with child	5.685*	3.364
	SINTER5	Teacher encourages cooperation in planning, with property	6.865**	8.924
	SINTER9	Teacher explains effect of child's action	9.183**	5.127
	SREP1	Teacher describes an object's representation	10.748**	18.092

Table 20 (continued)

Trend	Dependent Variable		F ^a	Mean Square
	Name	Description		
Quadratic	SREP2	Teacher encourages imitative behaviour	5.329*	4.352
	SREP5	Teacher helps child predict effect of actions	5.140*	4.583
	SREP7	Teacher provides language to help verbal expression	8.381**	3.702
	SCRE3	Teacher encourages child's sustained experience with media	4.696*	5.948
Residual	SINTER5	Teacher encourages cooperation in planning, with property	2.805*	3.647
	SREP5	Teacher helps child predict effect of actions	2.829*	2.523

a all df's = 1, 80

b S represents Sign System

c LOC7 represents locus of control goal item seven

d INTER1 represents interrelationships goal item one

e REP5 represents representation goal item five

f CRE4 represents creativity goal item four

* $p < .05$

** $p < .01$

*** $p < .001$

goal period effect were representation goal items. The two other contributors were an interrelationships goal item and a locus of control goal item. Because the predominant goal category for both systems was representation, it was concluded that the results of the two tests of the effect of monthly goal period on the two systems' dependent variables, could be considered comparable. Similarly, the multivariate tests of the differences across the four teachers and the four areas on the two systems' dependent variables showed that the goal categories of the two systems' dependent variables that had contributed to the effects were similar. In the case of the teacher effect, the two Category System dependent variables were representation goal items. Two of the three Sign System dependent variables were also representation goal items. Therefore, the significant teacher effect was produced primarily by differences in select representation goal dependent variables.

The dependent variables contributing to the area effect included more than one goal category. Among the seven Category System dependent variables, three goal categories were relatively equally distributed. There were two interrelationships, three representation and two creativity goal items which had contributed to the significant multivariate test of the effect of area. Twelve out of the possible 20 Sign System dependent variables contributed to the area effect. The distribution of these dependent variables across the three goal categories which were represented among the

Category System dependent variables was fairly comparable. However, the creativity goal category included four dependent variables which is one greater than the number of inter-relationships and representation goal items which obtained significant univariate F values. In addition two other Sign System dependent variables in the locus of control goal category had also contributed to the significant multivariate test of the area effect.

Close similarities across the goal categories which were represented among the significant Category and Sign System dependent variables in the multivariate tests of monthly goal period, teacher and area, were found. It appeared that the greater quantity and range of Sign System dependent variables provided more information about the types of teachers' behaviours that had contributed to the significance of the effects tested. Therefore the consideration of the actual raw data values of each of the significant dependent variables which were found across the levels of each of these three independent variables will be conducted with reference to the Sign System dependent variables only.

A comparison of the Category and Sign System dependent variables which had contributed to the significant multivariate tests of linear and quadratic trends across the 10 weeks showed that the goal categories represented among the dependent variables were not comparable. Therefore it was decided that the raw data values of both the Category and Sign System significant dependent variables would

be examined.

The monthly goal period effect. The mean frequencies of the four Sign System dependent variables which had contributed to the significant monthly goal period effect are presented in Table 21. Four mean frequencies, one for each of the four levels of monthly goal period, are provided. A consideration of the positions of the relatively highest and lowest values among the four goal periods per dependent variable revealed a similar pattern across all dependent variables. In all cases, the highest frequency values were located in the fourth monthly goal period cell. The lowest frequency values were located in the second monthly goal period for the following behaviours: teacher encourages a child's sustained involvement at an activity (SLOC11), teacher fulfills commitment to child to develop a trusting relationship (SINTER1), and teacher helps child predict effect of actions on materials (SREP5). Only in the case of the teacher's describing an object's representation (SREP1) was the lowest frequency of occurrence located in the first monthly goal period. Thus it might be concluded that the average frequencies of occurrence of these dependent variables increased from the second to the fourth monthly goal period, more specifically from week two to week nine.

The teacher effect. The mean frequencies of the three Sign System dependent variables which had contributed to the significant teacher effect are presented in Table 22. These means were summed across the 10 weeks of video taping. It is noteworthy that these three dependent variables all had relatively

Table 21

Mean Frequencies of the Four Sign System Dependent
Variables Which Had Contributed to the Significant
Monthly Goal Period Effect

Monthly Goal Period	Sign System Dependent Variables			
	SLOC11 ^b	SINTER1 ^c	SREP1 ^d	SREP5
1	4.17	0.708	1.04	1.08
2	4.04	0.458	1.63	0.46
3	4.54	0.667	1.79	1.0
4	4.83	1.25	2.46	1.33

Note. Maximum per cell = 5

^a Each monthly goal period's mean frequency was calculated over 24
10-minute video tape segments

^b SLOC11 represents locus of control goal item 11

^c SINTER1 represents interrelationships goal item one

^d SREP1 represents representation goal item one

Table 22

Mean Frequencies of the Three Sign System Dependent
Variables Which Had Contributed to the Significant
Teacher Effect

Teacher ^a	Sign System Dependent Variables		
	SREP5 ^b	SREP7	SCRE5 ^c
1	0.43	0.63	0.53
2	1.43	0.40	0.30
3	1.27	0.33	0.43
4	0.97	0.10	0.13

Note. Maximum per cell = 5

^a Each teacher's mean frequency was calculated over 30
10-minute video tape segments.

^b SREP5 represents representation goal item five

^c SCRE5 represents creativity goal item five

low frequencies of occurrence. A consideration of which teachers had been observed to carry out either the greatest or least amount of these behaviours revealed a pattern in two of the three dependent variables. In comparison to the other teachers, teacher one was observed to carry out, to the greatest extent, the provision of language to help with a child's verbal expressions (SREP7), and the exposure of children to the creative expressions of others in order to convey their cultural value (SCRE5). Teacher four was observed to perform these behaviours least frequently. The other dependent variable that had contributed to the significant teacher effect referred to teacher's helping a child predict the effect of actions on materials (SREP5). Interestingly, teacher one was observed to perform this behaviour least frequently, while teacher two performed it most frequently.

Because the teachers had been observed on the videotape to differ in their frequencies of performing these behaviours, it was of interest to determine whether their performance of these dependent variables had differed across the 10 weeks.

The mean frequencies of these three Sign System dependent variables which had contributed to the significant teacher effect are listed in Table 23 for each teacher in each of the 10 weeks. Figure 2 provides a graphical presentation of those frequencies presented in Table 23. The curves depicting the change of a teacher's helping a child predict the effect of actions on materials (SREP5) across 10 weeks show that there is a trend toward increasing frequencies of this behaviour from week six to week 10. In teacher four's case, the mean frequencies

Table 23

Mean Frequencies of the Three Sign System Dependent Variables
Which Had Contributed to the Significant Teacher
Effect for the Four Teachers Across the 10 Weeks^a

Teacher	Weeks									
	1	2	3	4	5	6	7	8	9	10
Sign System Representation Goal Item Five										
1	0.0	0.33	0.0	0.0	0.67	0.67	0.33	1.0	0.33	1.0
2	0.33	0.67	3.0	0.0	0.0	1.67	1.33	3.0	1.0	3.33
3	1.33	1.0	1.0	1.33	0.33	0.67	1.33	2.0	1.67	2.0
4	1.33	0.67	2.0	1.0	0.33	0.67	1.33	0.67	1.0	0.67
Sign System Representation Goal Item Seven										
1	1.67	0.0	1.0	0.67	1.67	0.67	0.0	0.33	0.33	0.0
2	1.0	0.33	0.67	0.67	0.67	0.33	0.33	0.0	0.0	0.0
3	0.0	0.33	1.0	0.33	0.67	0.67	0.33	0.0	0.0	0.0
4	0.33	0.0	0.33	0.0	0.0	0.0	0.0	0.33	0.0	0.0
Sign System Creativity Goal Item Five										
1	0.0	1.0	0.67	0.0	0.0	1.33	1.0	0.67	0.0	0.67
2	0.67	0.0	0.33	0.0	0.0	0.67	0.0	1.0	0.0	0.33
3	0.0	1.0	0.0	1.67	1.33	0.0	0.33	0.0	0.0	0.0
4	0.0	0.33	0.0	0.0	0.0	0.0	0.33	0.0	0.33	0.33

Note. Maximum per cell = 5

^a Each mean teacher x week frequency was calculated over
3 10-minute video tape segments

—●— SREP5
 —○— SREP7
 - - x SCRE5

TEACHER 1

TEACHER 2

TEACHER 3

TEACHER 4

Figure 2. Mean frequencies of three Sign System dependent variables which have contributed to the significant teacher effect observed for each teacher across 10 weeks.

range from 2.0 to 0.33. However the overall average trend appears to be linear.

The curves depicting a teacher's provision of language to help with a child's verbal expression (SREP7), reveal that the relatively higher mean frequencies occurred during the first six weeks. During weeks 7, 8, 9 and 10, there were two zero frequencies for teacher one, and three zero frequencies for all the other three teachers.

Only for the dependent variable describing the teacher's exposure of children to the creative expression of others (SCRE5), is there evidence of some difference between the mean frequencies of teacher three as compared to those observed in teachers 1, 2, and 4. During weeks four and five, teacher three performed this behaviour at the highest frequency levels relative to the other weeks. Interestingly, all other teachers were not observed to perform these behaviours at all during weeks four and five. From week six onward teacher three's mean frequencies remained at relatively lower levels than those evident in all other teachers' video tapes. Thus in the case of SCRE5 only is there evidence for a relatively small teacher by week interaction. These findings might be attributed to the different area responsibilities of the teachers during weeks four and five. Teacher three was videotaped in areas two (active), and three (art). Teachers 1, 2 and 4 were video taped in areas three and four (snack), four and one (quiet) and one and two, respectively.

The area effect. The mean frequencies of the 12 Sign System dependent variables which had contributed to the significant area effect are presented in Table 24. Four mean frequencies are associated with each dependent variable, one for each area. Three different sets of dependent variables were identified which obtained their relatively highest frequency values in one area. Four dependent variables were relatively most frequently observed to occur in area two, the active area. These variables described the following teacher behaviours: a teacher's encouraging a child to respect another's needs and personal space (SINTER8), a teacher's encouraging imitative behaviour (SREP2), a teacher's drawing attention to, praising and acting on a child's innovative behaviour (SCRE1), and a teacher's exposing a child to the creative expression of others (SCRE5). Interestingly, all of these dependent variables but SREP2 were least frequently observed in area one, the quiet area.

Six other dependent variables, which had contributed to the significant area effect occurred most frequently in area three, the art area. These variables were associated with each of the four goal categories, with a greater proportion related to the representation and creativity goals. The descriptions of these behaviours are as follows: a teacher's encouraging a child's initiative in any form (SLOC10), a teacher's fulfilling a commitment to a child to develop a trusting relationship (SINTER1), a teacher's helping a child to predict the effect of his actions on materials (SREP5), a teacher's describing an object's representation (SREP1), a teacher's helping a child

Table 24

Mean Frequencies of 12 Sign System Dependent Variables
Which Had Contributed to the Significant
Area Effect

Dependent Variables	Area ^a			
	1	2	3	4
SLOC3 ^b	0.5	0.63	0.2	1.1
SLOC10	2.90	3.2	3.83	1.87
SINTER1 ^c	0.93	0.87	1.17	0.43
SINTER5	1.5	2.03	1.37	3.53
SINTER8	0.4	0.97	0.53	0.47
SREP1 ^d	1.8	0.97	1.87	1.8
SREP2	0.77	0.80	0.57	0.07
SREP5	0.87	1.1	1.5	0.63
SCRE1 ^e	0.43	1.30	1.00	0.53
SCRE2	1.7	2.53	2.83	1.27
SCRE3	4.77	4.13	4.8	4.0
SCRE5	0.1	0.7	0.47	0.13

Note. Maximum per cell = 5

^a Each area's mean frequency was calculated over 30
10-minute video tape segments

^b SLOC3 represents locus of control goal item three

^c SINTER1 represents interrelationships goal item one

^d SREP1 represents representation goal item one

^e SCRE1 represents creativity goal item one

appreciate his own actions (SCRE2), and a teacher's encouraging sustained experience with and appreciation of the media (SCRE3). It is noteworthy that, excluding SREPl, all of these dependent variables were observed least frequently in area four which is the snack area.

Thus patterns of specific behaviour groupings were evident in terms of their most frequent and least frequent locations. The final set of two dependent variables revealed a pattern which diametrically opposes the pattern of these five dependent variables.

Two dependent variables were observed to occur most frequently in area four, the snack area, and least frequently in area three, the art area. The two goal categories represented, locus of control and interrelationships, are those which had not predominated in the other two sets of dependent variables. The actual behaviours are a teacher's encouraging material replacement after its use (SLOC3) and a teacher's helping a child cooperate with other's plans and respect other's property (SINTER5).

The linear and quadratic trends across weeks. The mean frequencies of the five Sign System dependent variables which had contributed to the significant linear trend across weeks are presented in Table 25. Each mean frequency was calculated over 12 10-minute video tape segments obtained per week. There are 10 mean frequencies associated with each dependent variable. Table 26 was set up, in a similar manner, to present the mean frequencies of ten Sign System dependent variables which had contributed to the significant quadratic trend across weeks. It is noteworthy that four of the five dependent variables associated with the linear trend were also associated with the

Table 25

Mean Frequencies of Five-Sign System Dependent
Variables Which Had Contributed to the
Significant Linear Effect Across Weeks

Dependent Variable	Week ^a									
	1	2	3	4	5	6	7	8	9	10
SLOC7 ^b	4.58	4.75	4.50	4.25	4.42	4.25	4.83	5.0	4.83	4.92
SINTER1 ^c	1.17	1.08	0.33	0.5	0.42	0.58	0.75	1.5	1.0	1.17
SINTER5	1.75	1.5	2.0	2.42	1.33	1.42	2.25	2.83	2.33	3.25
SREP5 ^d	0.75	0.67	1.5	0.58	0.33	0.92	1.08	1.67	1.0	1.75
SCRE4 ^e	4.83	5.0	4.92	4.92	4.33	4.67	5.0	5.0	5.0	5.0

Note. Maximum per cell = 5

^a Each week's mean frequency was calculated over 12
10-minute video tape segments

^b SLOC7 represents locus of control goal item seven

^c SINTER1 represents interrelationships goal item one

^d SREP5 represents representation goal item five

^e SCRE4 represents creativity goal item four

Table 26

Mean Frequencies of 10 Sign System Dependent
Variables Which Had Contributed to the
Significant Quadratic Effect Across Weeks

Dependent Variable	Week ^a									
	1	2	3	4	5	6	7	8	9	10
SLOC7 ^b	4.58	4.75	4.5	4.25	4.42	4.25	4.83	5.0	4.83	4.92
SLOC11	4.42	4.33	4.0	4.0	4.1	4.25	4.83	4.92	4.75	4.75
SINTER1 ^c	1.17	1.08	0.33	0.5	0.42	0.58	0.75	1.5	1.0	1.17
SINTER5	1.75	1.5	2.0	2.42	1.33	1.42	2.25	2.83	2.33	3.25
SINTER9	0.5	0.58	0.83	0.75	0.58	0.5	0.25	0.17	0.17	0.25
SREP1 ^d	1.0	1.0	1.08	1.58	1.67	1.17	2.42	2.33	2.58	1.25
SREP2	0.25	0.58	0.0	0.67	0.42	0.25	0.92	1.17	0.67	0.58
SREP5	0.75	0.67	1.5	0.58	0.33	0.92	1.08	1.67	1.0	1.75
SREP7	0.75	0.17	0.75	0.42	0.75	0.42	0.17	0.17	0.08	0.0
SCORE3 ^e	3.83	4.42	4.17	4.33	4.25	4.08	4.83	4.92	4.67	4.75

Note. Maximum per cell = 5

^a Each week's mean frequency was calculated over 12
10-minute video tape segments

^b SLOC7 represents locus of control goal item seven

^c SINTER1 represents interrelationships goal item one

^d SREP1 represents representation goal item one

^e SCORE3 represents creativity goal item three

quadratic trend. Figure 3 provides a graphical presentation of the 10 mean frequencies associated with each dependent variable. The dependent variables associated with each of the four goal categories are graphed separately on four different graphs.

An examination of the curves associated with the linear trend showed that some of the observed behaviours increased at relatively different rates from the earlier to the later weeks. In the case of two of the dependent variables the increases began after a sudden decline in the frequencies, as evidenced by the mean frequency of 4.33 in week five for a teacher's helping a child develop skills (SCRE4) and the mean frequency of 0.33 in week three for a teacher's fulfilling a commitment to a child to develop a trusting relationship (SINTER1). The other three curves appeared to proceed in a more consistent upward direction. These curves tended to show initial increases followed by less dramatic declines that did not fall relatively as far below the first week's frequencies as was the case with the former two curves. Even though these curves did not portray smooth linear trends, it is expected that the curve providing the best fit with the frequencies associated with each dependent variable would show a linear trend. The teachers' behaviours associated with the curves proceeding in a more consistent upward direction were, a teacher's acknowledging and commenting upon a child's individuality to encourage self-value (SLOC7), a teacher's helping a child cooperate with other's plans and respect other's property (SINTER5), and a teacher's helping a child predict the effect of actions on material (SREP5).

- Associated with both linear and quadratic trends.
- x--x Associated with the quadratic trend only.
- Associated with the linear trend only.

LOCUS OF CONTROL

INTERRELATIONSHIPS

REPRESENTATION

CREATIVITY

Figure 3. Mean frequencies of 11 Sign System dependent variables, across 10 weeks, which had contributed to the significant linear and quadratic trends.

Excluding SCORE4, the four remaining dependent variables which had contributed to the linear effect had also contributed to the quadratic effect in combination with six other dependent variables. The teachers' behaviours associated with these six dependent variables were: a teacher's encouraging and acknowledging a child's sustained involvement at an activity (SLOC11), a teacher's explaining the effect of a child's action (SINTER9), a teacher's describing an object's representation (SREP1), a teacher's encouraging imitative behaviour (SREP2), a teacher's providing language to help a child's verbal expression (SREP7), and a teacher's encouraging a child's sustained experience with and appreciation of media (SCORE3).

The curves associated with each of the 10 dependent variables have been grouped to identify which curves shared similar week positions for their relatively lowest and highest mean frequencies. The earliest single lowest mean frequency of the SLOC7, SLOC11, SINTER1 and SREP2 curves was on week three. The highest mean frequencies on either side of this lowest point ranged between weeks one and two, on one side of the curve, and week eight on the other. In all these four curves the mean frequencies of the dependent variables observed during weeks nine and ten were lower than those attained during week eight. This finding is of particular interest in terms of the design because the video taping of weeks nine and ten was conducted after the fourth cooperative feedback session. The teachers also viewed the randomly selected 10 minute segments video taped during these two weeks with reference to the

behavioural criteria associated with all four goals.

Two of the dependent variables, namely, SINTER5 and SREP5, reached their lowest mean frequencies during week five. The highest points on either side of these two curves were week four and week 10 for SINTER1, and week three and week 10 for SREP5. In both these curves, however, the mean frequencies observed on week nine were dramatically lower than those attained on week eight. This sudden decreasing trend was reversed on week 10 with mean frequencies which exceeded the values observed on week eight. Again the mean frequencies of weeks nine and ten seem to provide evidence of a change in teachers behaviours from weeks eight to 10. For SINTER5 and SREP5, the decreasing trend from week eight to nine did not persist as was the case for the five dependent variables of the former group.

Two dependent variables were observed to reach their relatively lowest mean frequencies during the initial weeks of video taping. More specifically, weeks one and two for SREP1 and week one for SCRE3 were the lowest points of their curves. Thereafter, these curves showed an increasing trend from week three followed by a sudden decrease on week six. The trends in the remaining portions of these two curves were similar only to the extent that the mean frequencies observed during weeks 7, 8 and 9 were relatively higher than those in the earlier portions of the curves.

In contrast to these latter curves, the lowest mean

frequencies observed on SINTER9 occurred in weeks eight and nine, and those observed on SREP7 occurred in weeks nine and ten. The quadratic portion of the SREP7 curve appears to include weeks one to five only. The remaining portion of this curve shows a decreasing trend. However the quadratic portion of SINTER9 appears to consist of weeks three to ten inclusive, with the lowest mean frequencies in weeks eight and nine.

The mean frequencies of the two Category System dependent variables namely CREP1 and CREP3 which had contributed to both the significant linear and quadratic trends are presented in Table 27. A graphical presentation of these two sets of mean frequencies across the 10 weeks can be found in Figure 4. Interestingly the CREP1 dependent variable, which describes a teacher's encouraging a child in the use of representation, appears to have obtained a similar pattern of relatively lowest and highest mean frequencies in those particular weeks that were evident in the comparable Sign System dependent variable, SREP1. The lowest frequencies were observed during the earliest weeks. The middle portions of the curves revealed an ascending trend with a sudden decrease in week six only. In addition the mean frequencies on week 10 were lower than those observed on week nine. A similar comparison can be made between curves SREP7 and CREP3. The CREP3 dependent variable describes a teacher's attempt to provide language to help a child's verbal expression. This description is also appropriate for SREP7. In both these curves, there was a decreasing trend in the mean frequency values from week six onward, to a level below the initial

Table 27

Mean Frequencies of Two Category System Dependent
Variables Which Had Contributed to Both
The Significant Linear and Quadratic Effects Across Weeks

Dependent Variable	Weeks ^a									
	1	2	3	4	5	6	7	8	9	10
CREP1 ^b	0.92	1.5	0.92	1.17	1.75	1.25	1.92	2.58	3.42	1.83
CREP3	3.67	3.17	3.25	3.42	2.92	3.33	2.42	1.33	1.42	2.17

Note. Maximum per cell = 5

^a Each week's mean frequency was calculated over 12
10-minute video tape segments

^b CREP1 represents representation goal item one

Figure 4. Mean frequencies of two Category System dependent variables, which had contributed to the significant linear and quadratic trends, across 10 weeks.

portion of the curve. It is noteworthy that these two pairs of similar Sign and Category System dependent variables had been observed to occur with relatively similar mean frequencies. This finding further substantiates the consistency across the two observational formats.

(f) The Number of Times Teachers Viewed Each Week's Video Tapes

Table 28 provides the frequencies of teachers' viewing each week's randomly selected 10-minute segment of video tape feedback. In addition, the mean number of viewings, averaging across teachers, per week and the standard deviations are listed. The one-way univariate analysis of variance calculated for the purpose of examining differences in the frequencies across the 10 weeks obtained a nonsignificant F value. Thus it could be concluded that the number of times the teachers viewed the video tapes did not differ across the 10 weeks of viewing any more than what would have been expected by chance.

(g) Teachers' Rankings of Components of the Evaluation Strategy

Table 29 provides each teacher's responses to question two of the final brainstorming session questionnaire as well as a description of the six components of the evaluation strategy which they were ranking. Table 30 is the analysis of variance summary table on the teachers' responses to this question. Since the overall F value was significant it could be concluded that the rankings assigned to the six components did differ with greater than chance probability. However, one problem with the analyses on the ranks, as indicated by Cochran's C statistic, (.3562) was that the probability of equal cell variances was

Table 28

The Number of Times Each Teacher Viewed Each
Randomly Selected 10-Minute Segment Per Week

Week	Teacher				Mean	Standard Deviation
	T1	T2	T3	T4		
1	2	2	2	3	2.25	.500
2	3	1	2	2	2.0	.816
3	2	2	2	3	2.25	.500
4	2	2	2	2	2.0	.000
5	4	1	2	2	2.25	1.258
6	2	2	2	2	2.0	.000
7	2	1	1	2	1.5	.577
8	1	2	2	1	1.5	.577
9	2	1	1	2	1.5	.577
10	1	1	2	2	1.5	.577

Table 29

Teachers' Rankings of the Impact of
Six Components of the Goals-Guide-Behaviours
Evaluation Strategy upon their
Teaching Behaviours

Goals-Guide-Behaviours Component	Teachers' Rankings				Mean	Standard Deviation
	T1	T2	T3	T4		
(a) the brainstorming session on goals and behaviours	1	1	2	2	1.5	0.577
(b) being videotaped in the classroom	5	3	5	6	4.75	1.258
(c) viewing yourself on videotape	3	2	6	5	4.0	1.826
(d) viewing yourself on videotape in terms of the list of behaviours for implementing one goal	2	4	1	3	2.5	1.291
(e) sharing your impressions from viewing yourself on videotape with others at the cooperative feedback sessions	4	6	3	1	3.5	2.082
(f) listening to others describe their impressions of viewing themselves on videotape at the cooperative feedback sessions	6	5	4	4	4.75	0.957

Table 30

Analysis of Variance Summary Table on the Teachers'
Rankings of the Impact of Six Components of the
Goals-Guide-Behaviours Evaluation Strategy upon
Their Teaching Behaviours

Source	df	SS	MS	F
Goals-Guide-Behaviours Component	5	33.50	6.70	3.30*
Within cells	18	36.50	2.028	
Total	23	70.00		

* $p < .05$

only .39. This value indicated that the fulfillment of the assumption of homogeneity of variance was questionable. This increased the likelihood that the F test had a positive bias, since the chance of obtaining significant results would be greater than the distribution of values warrants. In spite of this problem, the LSD (Kirk, 1968, p. 87), a multiple comparison procedure, was employed to provide a test of whether any of the pairwise comparisons among means was significant. At the alpha level of .05, three subsets of the six Goals-Guide-Behaviours evaluation procedures were found to have no significant differences between any pair of means. The first subset included components (a), (d) and (e), the second included (c), (d) and (e) and the third included, (b), (c), (e) and (f) (see Table 29 for a description of each component).

These three subsets of Goals-Guide-Behaviours components might be interpreted to represent the average teacher's breakdown of the six components into three different levels of impact. Since the first and third subsets include all of the components of the evaluation strategy, an interpretation of these subsets only will be provided. The first subset included the three components which had received the highest rankings. They were the brainstorming session, the video tape feedback experience employing one goal's behavioural guidelines, and the cooperative feedback sessions for sharing their impressions of the video tape feedback experience. An examination of the individual teacher's rankings assigned to these components demonstrated that two of the teachers assigned the highest rank to the

brainstorming session, and the other teachers each assigned the highest rank to one of the other two components of this first subset.

The final subset of four mean rankings might be interpreted to represent the set of four components of the evaluation strategy which the teachers ranked as having had the least impact upon their teaching behaviours. Interestingly, this group included the one component from the first subset of three components discussed above having the relatively lowest mean ranking in that subset. Because the standard deviation associated with (e) at 2.082 was relatively much larger than any of the others, it was difficult to provide a clear interpretation of how the teachers as a whole ranked the impact of this component. Rather, they had quite differing opinions about its impact. A similar wide range of teachers' rankings of component (c) also produced the relatively large standard deviation of 1.826. The two other components in this subset both obtained the same mean rankings of 4.75. They were (c), the experience of being video taped in the classroom, and (f), the experience of listening to others describing their impressions of viewing themselves on video tape at the cooperative feedback sessions. According to all the teachers these two experiences had the least impact upon their teaching behaviours. Interestingly they are the only two components which did not require active teacher involvement. All the other four components necessitated active teacher participation in order for them to be carried out.

(h) The Immediate Impact of Discussing or Viewing Video Tapes
of Specific Teacher Behaviours at the Cooperative Feedback
Sessions

All of the teachers' behaviours that were discussed at each of the cooperative feedback sessions were assigned a Sign System observational item label. A total of 25 out of the 36 Sign System items were discussed at least once by at least one teacher. An attempt was made to determine whether the discussion of specific teaching behaviours produced any changes in the observed mean frequencies of occurrence of these behaviours. A comparison was made of the mean frequencies of occurrence of each teaching behaviour prior to and after the cooperative feedback session when it was discussed. From these comparisons it was possible to determine whether there had been an increase, a decrease or no change at all. Table 31 presents the list of Sign System observational items discussed at each cooperative feedback session and the number of times each item was discussed by the same or different teachers. Furthermore, Table 31 provides the information on whether the comparison across the mean frequencies demonstrated either an increase, a decrease or no change. The predominant change was a decrease in the mean frequencies after the cooperative feedback session. This finding served as a caution against making any general conclusions about the impact of the discussions during cooperative feedback sessions upon subsequent teaching performance. It is noteworthy that the number of times an item was discussed at a cooperative feedback session did not bear any consistent

Table 31

Changes in the Mean Frequencies of those Sign System Observational Items Discussed at Each Cooperative Feedback Session Comparing Pre- and Post-Cooperative Feedback Session Weeks

CFS ^a	Sign System Observational Item	Number of Times Discussed	Change in Mean Frequencies		
			Increase	Decrease	No Change
1	b SLOC2 ^c	1		✓	
	SLOC5	1			✓
	SLOC6	2			✓
	SLOC7	4		✓	
	SLOC8	6	✓		
	SLOC9	3	✓		
	SLOC10	1		✓	
	SLOC11	1		✓	
	SLOC13	1			✓
	SLOC14	2			✓
2	SINTER3 ^d	2		✓	
	SINTER6	2			✓
	SINTER7	1		✓	
	SINTER9	1		✓	
	SINTER10	2		✓	
3	SREP1 ^e	4	✓		
	SREP3	4		✓	
	SREP4	2		✓	
	SREP5	3	✓		
	SREP7	5		✓	

Table 31 (continued)

CFS ^a	Sign System Observational Item	Number of Times Discussed	Change in Mean Frequencies		
			Increase	Decrease	No Change
4	SCRE1 ^f	2	✓		
	SCRE2	2	✓		
	SCRE3	5		✓	
	SCRE4	1			✓
	SCRE5	2		✓	

^a CFS represents cooperative feedback session

^b S represents Sign System

^c LOC2 represents locus of control goal item two

^d INTER3 represents interrelationships goal item three

^e REP1 represents representation goal item one

^f CRE1 represents creativity goal item one

relation to the type of change or lack of change in the mean frequencies of that teaching behaviour immediately afterwards.

Three of the observational items listed on Table 31 were discussed within the context of one teacher's showing a video tape segment exemplifying her implementation of that behaviour. The types of teaching behaviours represented in these observational items were, a teacher's acknowledging a child's presence and encouraging the child to value himself (SLOC7), a teacher's attempt to extend play to include more children (SINTER7), and a teacher's provision of language to help a child's verbal expression (SREP7). Both SLOC7 and SREP7 were included in the reduced raw data set employed to test the effects of the independent variables. It is noteworthy that SINTER7 had been observed very infrequently in the 20 hours of video tape. It was one of the dependent variables excluded from the factor analysis of the Sign System dependent variables. Table 32 presents the mean frequencies of these three teaching behaviours for each teacher across the 10 weeks of video taping. The comparisons of interest were between weeks two and three for SLOC7, between four and five for SINTER7 and between six and seven for SREP7.

All the comparisons between the pre- and post-cooperative feedback session weeks showed that the general trend was for the mean frequencies to decrease. Only in the case of teacher two's mean frequencies for SLOC7 and SINTER7 did a small increase exist. For SLOC7 the increase was from 4.67 to the maximum value possible, 5. For SINTER7 the increase was from 0.0 to

Table 32.

The Mean Frequencies of Three Sign System Observational Items
Which Were Discussed Within the Context of A Teacher's Video Tape
Showing of that Behaviour at a Cooperative Feedback Session

CFS ^a	Sign System Observational Item	Teacher	Weeks									
			1	2	3	4	5	6	7	8	9	10
1	b SLOC7 ^c	T ₁	4.33	4.33	4.0	4.33	3.67	4.33	5.0	5.0	5.0	4.67
		T ₂	4.67	4.67	5.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0
		T ₃ ^d	4.67	5.0	4.67	5.0	5.0	3.67	4.67	5.0	5.0	5.0
		T ₄ ^d	4.67	5.0	4.33	3.67	5.0	5.0	4.67	5.0	4.33	5.0
		$\bar{X}_T$ ^g	4.58	4.75	4.5	4.25	4.42	4.25	4.83	5.0	4.83	4.92
2	SINTER7 ^e	T ₁	0.0	0.0	0.33	0.0	0.0	0.33	0.0	0.0	0.0	0.0
		T ₂	0.33	0.0	0.0	0.0	0.67	0.33	0.33	0.0	0.33	0.33
		T ₃ ^d	0.0	0.67	0.0	1.67	0.67	1.0	0.33	0.33	0.0	0.0
		T ₄	1.67	0.0	0.33	0.0	0.0	0.0	0.67	0.0	0.67	0.0
		$\bar{X}_T$	0.5	0.17	0.17	0.42	0.33	0.42	0.33	0.08	0.25	0.08
3	SREP7 ^f	T ₁	1.67	0.0	1.0	0.67	1.67	0.67	0.0	0.33	0.33	0.0
		T ₂	1.0	0.33	0.67	0.67	0.67	0.33	0.33	0.0	0.0	0.0
		T ₃ ^d	0.0	0.33	1.0	0.33	0.67	0.67	0.33	0.0	0.0	0.0
		T ₄	0.33	0.0	0.33	0.0	0.0	0.0	0.0	0.33	0.0	0.0
		$\bar{X}_T$	0.75	0.17	0.75	0.42	0.75	0.42	0.17	0.17	0.08	0.0

Note. Maximum per cell = 5

^a CFS represents cooperative feedback session

^b S represents Sign System

^c LOC7 represents locus of control goal item seven

^d The teacher indicated showed a video tape segment of herself attempting to carry out the behaviour under consideration

^e INTER7 represents interrelationships goal item seven

^f REP7 represents representation goal item seven

^g $\bar{X}_T$ represents the mean frequency calculated over the four teachers' mean frequencies for each of the 10 weeks

0.67. All of the mean values obtained by averaging across all four teachers' records showed a decrease in the mean frequencies of each observational item.

Discussion

The main purpose of this research was to assess the impact of the Goals-Guide-Behaviours evaluation strategy upon the pre-school teachers' classroom behaviours. A secondary purpose was to test the feasibility of employing such a self-evaluation strategy as a component of the in-service training activities in an early childhood education programme. It was very evident from the analyses of the observational data coded from the 20 hours of video tape that the teachers' participation in this self-evaluation strategy did not bring about the expected changes in the frequencies of their teaching behaviours. None of the three predictions of increases in the frequencies of the behaviours being assessed was confirmed. However the successful achievement of the secondary purpose of this research cannot be underestimated. The teachers all reacted very favourably to participating in the Goals-Guide-Behaviours evaluation strategy. Moreover, they revealed in their questionnaire responses that they found the most influential components of the strategy to be the brainstorming session as well as the opportunities to assess their video taped behaviours against predetermined behavioural guidelines.

Hypothesis One

It was predicted that the teachers' experiences of judging their own video taped teaching behaviours against a predetermined

set of behavioural guidelines associated with each programme goal would increase the frequencies of those teaching behaviours. This prediction was not borne out by the findings. There were several teaching behaviours whose frequencies changed during the 10 weeks (see Figure 3). However they did not demonstrate the increasing frequencies expected. Moreover, reduced frequencies of some teaching behaviours were particularly evident during weeks 4, 5 and 6. This may have been related to the teachers' having less energy to give to the programme while they carried extra responsibilities beyond their daily programme commitment. It is also possible that they may not have been paying as close attention to the video tape feedback and their own self-assessment. During those weeks, a winter newsletter for parents was being written, a parent meeting was being planned and parent interviews were being conducted during school hours. Moreover, the teachers were expected to complete comprehensive developmental assessments on the children. The psychological significance of the lower frequencies of certain teaching behaviours during this period was that the self-evaluation experience could not compete with other responsibilities. It is possible that a refinement in the teachers' understanding of the behavioural guidelines may have been brought about through their discussions at the cooperative feedback sessions. Such a change could not be measured in terms of frequencies of teaching behaviours. Rather, it might be evident in the form of a teacher's behaviours. An improvement in the quality of teaching behaviours for example may not

necessarily have been related to increased use of specific behaviours in the classroom. No measure of the quality of the teaching behaviours was used in this research.

The prediction of increased frequencies of occurrence for those behaviours being assessed seemed appropriate in the light of the research findings demonstrating the addition of new behaviours to a teacher's repertoire after video tape feedback. The qualifying feature of such video tape self-evaluation that appeared to bring about the new behaviours was the explicit behavioural standard for teaching. The review of the relevant literature on the use of video tape feedback in teacher pre- and in-service teacher training can be found on pages 33 to 37. This researcher assumed that if the teachers found they were not carrying out some of the behaviours that were among the list of behavioural guidelines for a specific goal, they would subsequently add them to their repertoire. It was expected that the teachers would attempt to improve their means of implementing a programme goal by using the predetermined behavioural criteria in the appropriate teacher-child interactions. Because most of the teaching behaviours that were coded maintained consistent frequencies over the 10 weeks, it might be suggested that the teachers had reached what they believed were optimal frequencies of implementing these behaviours.

Hypothesis Two

It was predicted that the frequencies of occurrence of those teaching behaviours described in the behavioural guide-

lines associated with each of the four programme goals would demonstrate monthly increases corresponding to the monthly change in the goal employed for video tape self-evaluations and each cooperative feedback session. It was expected, for example, that relatively higher frequencies of occurrence for the locus of control observational items would be recorded during weeks two and three, the first monthly goal period. Similarly, it was expected that with the introduction of the interrelationships goal behavioural guideline after week three, the frequencies of occurrence of the interrelationships observational items on video tape might attain relatively higher mean frequencies during weeks four and five, the second monthly goal period, in comparison to the earlier weeks. The relatively higher mean frequencies for both the representation goal and creativity goal observational items were expected to be observed during weeks six and seven (the third monthly goal period), and weeks eight and nine (the fourth monthly goal period) respectively. In the light of the findings that only four behaviours demonstrated gradual increases from the second to the fourth monthly goal period (see Table 21), it was evident that the prediction of different patterns of changing mean frequencies for each goal's behavioural guidelines was not demonstrated.

The actual fluctuations in the mean frequencies of the four teaching behaviours over time might be explained by the possibility of a cumulative effect from all of the bi-monthly video tape self-evaluation assessments and monthly cooperative

feedback sessions. Apparently, a teacher's review of one goal per month was not sufficient to create immediate changes in teaching behaviours. In future, if the recommended changes for the Goals-Guide-Behaviours evaluation strategy were adopted, the frequencies of teacher behaviours might change at a different rate. In the recommended new format the teachers would assess not only whether they had implemented specific teaching behaviours but also their degree of success at employing those behaviours with specific children. Teachers might be encouraged to focus upon how they interacted with specific children so that they might direct subsequent attempts at carrying out specific teaching behaviours with those children who they felt were most in need of such teacher-child interactions. These assessments might be achieved by reviewing the video tapes containing records of such interactions.

Hypothesis Three

The third prediction suggested a relationship between the showing of a video tape segment of teaching behaviour during a cooperative feedback session and a subsequent increase in the mean frequency of occurrence of that teaching behaviour in the classroom. This prediction was also not demonstrated by the findings.

During the first cooperative feedback session, both teachers three and four showed video tapes of themselves conveying their assessments of a similar teaching behaviour namely, SLOC7, a teacher's acknowledging a child's presence and valuing his individuality. Only teacher three showed video tapes of

her teaching behaviours during the second and third cooperative feedback sessions. One video tape segment depicted her extending childrens' puppet play in the active area to include more children (SINTER7). This was shown in the second cooperative feedback session during which the teachers conveyed their assessment of their video taped interrelationships goal teaching behaviours. During the third cooperative feedback session when the representation goal's behavioural guideline was discussed, teacher three showed a video tape of her attempt to provide language to help some children's verbal expression (SREP7). No video tapes were shown during the fourth cooperative feedback session.

As it was pointed out in the Results (see page 147), the mean frequencies of occurrence of these behaviours decreased from the week previous to the week after the cooperative feedback sessions at which they were discussed.

The prediction that the experience of viewing a video taped sample of teaching behaviour might bring about an increase in the frequency of occurrence of that behaviour during subsequent weeks was based upon the reported demonstration that model video taped behaviour enhanced the impact of video tape feedback for teachers (Rutherford, 1973) as described in the Introduction (page 34). In comparison to Rutherford's (1973) model video tape, the teachers' four video tape showings during the cooperative feedback sessions of the present study did not provide explicit easily replicable model teaching behaviours. Three of the four video tape showings consisted of situations in which the teachers had not carried out a specific teaching

behaviour in the manner which had been described as the ideal in the behavioural guideline. The discussions of these video taped teaching behaviours consequently dealt with suggestions of how the teachers might more closely meet the ideal in implementing the behaviour. Moreover because three of the four teaching behaviours shown on video tape at the cooperative feedback session had not demonstrated an explicit teaching behaviour's effectiveness, it might be suggested that they were not comparable to Rutherford's (1973) contrived model video tape format.

The Impact of the Goals-Guide-Behaviours Evaluation Strategy
Upon the Carleton Preschool

Even though the results indicated that the teachers' involvement in the self-evaluation strategy did not have the expected impact upon the frequencies of those teaching behaviours that they were evaluating, there is evidence that it precipitated constructive programming changes. One specific noteworthy example was the rethinking of the role of snack in the programme by the director and head teacher at the end of the year. The teachers' preoccupation with the distribution of snack to the children seemed to reduce the level of teacher-child communication at that time. This problem became much more evident from the video tape feedback. It led to a complete revision of snack during the following year of the programme. In contrast to the old format of only one teacher serving snack during mid-session, each of the four teachers now serves the snack of the day to small groups of children. This

re-arrangement should provide greater opportunity for social interaction between the teacher and the select group of children.

The problems with the old snack format were discussed at length during the third cooperative feedback session. Prior to this meeting each teacher assessed her representational teaching behaviours in two different preschool areas. One consequence was that the teachers compared their means of implementing the representation goal in the following areas: teachers one and four in the snack and active areas, and teachers two and three in the art and quiet areas. They observed that representational activities were more characteristic features of the art and quiet areas. Consequently, in an attempt to promote more representational teaching behaviours in the snack area, teacher one suggested the use of pictures of the daily snack placed on the snack table. The number of portions that was the limit for each food item offered would be indicated, next to each snack's picture. Teacher one admitted to having become more conscious, after having viewed her teaching behaviours at snack, of the children's persistent questioning regarding how many pieces of cheese, or how many glasses of juice, for example, were the limits for a day's snack. Since offering a maximum of two of each item was the general rule from day to day, it seemed logical that the provision of snack signs would not only promote an understanding of representational symbols but would also reduce the childrens' tedious questioning regarding the daily snack portions. Teacher one actually carried

out the use of snack signs immediately after the cooperative feedback session .

The introduction of snack signs may have accounted for the increased evidence, on the video tapes, of a teacher's describing an object's representation (SREPl) during week seven. Teacher one was again video taped in the snack area during week seven. The relatively large increase in the frequency of occurrence of SREPl during week seven was maintained during weeks eight and nine (see Table 26).

This discussion of the value of snack signs and their subsequent use in the snack area provides an example of how the cooperative feedback session might serve to guide programme planning. During future applications of the Goals-Guide-Behaviours evaluation strategy, the teachers might find it useful to discuss curriculum changes related to the implementation of one programme goal at the cooperative feedback sessions. The recommended change could then be instituted in the appropriate area of activity by the teacher responsible for that area. This teacher would be expected to assess, from examining the video tapes of her attempts to implement this curriculum change, whether the childrens' behaviours in that area of activity had been influenced by the change. Descriptions of the types of changes in the childrens' behaviours that had occurred as a consequence of the curriculum change could be provided at the staff meetings held during the weeks between cooperative feedback sessions.

Teachers' Hesitation to Show Video Tapes at the Cooperative Feedback Session

The cooperative feedback session was designed to encourage

the teachers to convey their assessments of their own teaching behaviours to the other teachers. In addition to providing a verbal presentation of their assessment they had the option of showing the portion of video tape which they assessed. This group sharing experience was intended to provide teachers with the opportunity to discuss how to overcome difficulties in carrying out certain teaching behaviours or to consider examples of the successful implementation of certain teaching behaviours which the others might model on the appropriate future occasions in the classroom. Only three of the wide range of possible teaching behaviours that were observed on the video tapes were shown.

The teachers' hesitation to show video tapes of their own teaching behaviours to the other staff came as a surprise to this investigator. Each cooperative feedback session was meant to serve as a non-judgemental exchange of ideas regarding the means whereby the teachers would implement a programme goal. The showing of video taped behaviours was expected to reinforce the general discussion of teaching behaviours. Even though most of the teaching behaviours associated with each programme goal were discussed at least once by each teacher at the appropriate cooperative feedback session, only teacher four on one occasion and teacher three on three occasions showed video tapes of themselves depicting the teaching behaviours discussed. While giving their verbal presentations at the cooperative feedback sessions, all the other teachers appeared to provide thorough assessments of their own video taped teaching behaviours.

However, they refrained from showing that portion of the video tape upon which they based their presentations. The only explanation the teachers consistently gave was that their verbal descriptions were adequate representations of what had happened in the classroom. Since the Goals-Guide-Behaviours evaluation strategy was intended to be a non-threatening self-evaluation experience for the teachers, the investigator chose not to question the teachers at length about the reasons for their not showing video tapes. The teachers never admitted to feeling threatened by the request to show video tapes of their teaching behaviours. However, it is possible that the fear of being judged by the other staff members and the director caused them to refrain from this.

It is difficult to make a conclusive statement about the value of encouraging a staff of preschool teachers to show video tapes of their teaching behaviours to each other. Since teacher three has had the most research experience, it may be that her commitment to research incited her to show her video taped teaching behaviours. She seemed interested to determine whether this aspect of the cooperative feedback session would account for subsequent changes in the teachers' implementing the programme goals.

One approach to evaluating the impact of differing formats of the individual teacher's verbal presentations upon their subsequent classroom behaviours involves comparing the frequencies of occurrence of the teaching behaviours subsequent to the experience of a different format with what they stated. An exemplary

design to test this research question might manipulate teachers' use of video tape showings accompanying their verbal presentations. A random sample of preschools employing the Goals-Guide-Behaviours evaluation strategy could be randomly assigned to one of the following three different cooperative feedback session treatments: (a) teachers' verbal presentations based upon obligatory video tape showings (experimental group I); (b) teachers' verbal presentations accompanied by voluntary video tape showings (experimental group II); and (c) teachers' verbal presentations with no accompanying video tape showings (control). In addition to comparing the pre- and post-cooperative feedback session frequencies of occurrence of those teaching behaviours discussed during teacher presentations, it would be useful to obtain the teachers' expectations of the impact of the presentation format they employed upon their subsequent teaching behaviours. The findings from such research would determine which format was most desirable for future applications of the Goals-Guide-Behaviours evaluation strategy.

In order to provide a description of the varying presentations which accompanied teachers' showing video tapes at the cooperative feedback sessions, a fuller consideration of each teacher's presentations will now be provided. During the first cooperative feedback session, both teachers three and four showed a portion of video tape depicting the same teaching behaviour, namely SLOC7. They both revealed dissatisfaction with their means of carrying out this behaviour in a particular context with a particular child. Teacher three expressed concern

over her failure to acknowledge the presence of one child at the snack table who had not initiated any verbal communication with the others. She explained that on future occasions in which she noticed a child refraining from participating in group conversation, she intended to acknowledge that child's presence and comment upon how his contribution would be valued by the group.

Teacher four expressed concern over her failure to interact with one child in a group who had not responded to her questions or comments about a story she was reading in the quiet area. Teacher four felt she might, in future, attempt to acknowledge this child's presence by directing specific questions and comments to him during the discussion of a story. Teacher three suggested it would perhaps be useful to comment upon events within a story which she knew the child would value in order to promote his participation.

During the second cooperative feedback session, teacher three was the only one to screen a portion of her video tape to the other teachers. It depicted her extending some childrens' puppet play in the active area to include other children (SINTER7). Teacher three expressed satisfaction with having had the opportunity to view this event on video tape, as she was able to assess how she had succeeded in expanding the activity to include some children who would probably not have participated otherwise.

During the third cooperative feedback session, teacher three was again the only teacher to show a portion of her video taped teaching behaviour. The video tape demonstrated the

difficulty she encountered in her attempt to provide a small group of children with the language appropriate for the game I Spy (SREP7). After the children's initial enthusiasm wore off, teacher three could not keep their interest in the game. In the teachers' discussion of this incident during the co-operative feedback session, they considered how far one might ideally pursue such a group situation before allowing the children to become completely distracted by their individual interests.

One approach to measuring the impact of differing contents in a teacher's video tape showing at a cooperative feedback session would require manipulating the type of video tape model that the teachers were asked to provide. The purpose of such research would be to measure the degree to which the content of the model video taped behaviour influenced the subsequent frequencies of the teaching behaviours, showed on video tape, in the classroom. An exemplary design to investigate this research question might manipulate the type of showings that randomly selected teams of preschool teachers would be obliged to provide. The differential impacts of the following three treatments could be tested out: (a) model video tape demonstrating an explicit teaching behaviour's effectiveness (experimental group I); (b) model video tape demonstrating an explicit teaching behaviour's ineffectiveness (experimental group II); and (c) no model video tape (control group).

Teachers' Comments About the Goals-Guide-Behaviours Evaluation Strategy

The main purpose of the questionnaire distributed at the

close of the final brainstorming session was to obtain each teacher's personal assessment of the meaningfulness and usefulness of the various components of the evaluation strategy. The teachers were also asked to recommend changes for a future application of the Goals-Guide-Behaviours evaluation strategy in which they might participate.

The teachers' overall assessments of the usefulness of the Goals-Guide-Behaviours evaluation strategy were as follows. Teacher one stated that she had "...profited a great deal from this research.... (after having been) a bit apprehensive at the beginning". Teacher two stated, "It has been very helpful to me as a teacher I now feel I know what my goals are and what I am doing". Finally, teacher three described the Goals-Guide-Behaviours evaluation strategy as a method which "...is excellent for facilitating individual and group development re teaching behaviours". The only components for which some teachers recommended changes were the initial brainstorming session and the cooperative feedback sessions. In any future conduct of this evaluation strategy, it would be essential to pay close attention to these teachers' recommendations, and to consider their relevance to the kind of evaluative assessment undertaken.

Two teachers recommended that the teachers should be given a longer period of time, during the initial brainstorming session, in which to think about programme goals as well as to list the operational behaviours associated with the goals. This investigator's initial intention in limiting these two periods was to

prevent expectations arising among the teachers that they were required to describe a highly refined set of programme goal definitions and the most complete list of associated behavioural guidelines. The word "brainstorming" was chosen to set this meeting off from the cooperative feedback sessions. As a brainstorming experience, it was intended to serve as an opportunity for the teachers to pool their own ideas regarding their preferences among the range of current preschool programme goals. Their suggestions of how they would like to implement these goals were to be derived from their own professional experiences as preschool teachers.

The fact that most teachers expressed some dissatisfaction with what had been produced at the brainstorming session was no surprise. It was this investigator's intention to produce such feelings among the teachers in order to incite them to refine, expand and clarify the initial definitions of their programme goals and the associated behavioural guidelines at each of the cooperative feedback sessions. It was expected that the teachers would be better prepared to refine the goals' original versions after they had assessed their own video taped teaching behaviours against each of the behavioural guidelines. This was very evident in all the cooperative feedback sessions.

One teacher suggested that a more extended period of time be devoted to the listing of the behavioural guidelines. She recommended that the teachers might be encouraged to read theoretical discussions of the appropriate means for implementing a goal. In the light of this suggestion, the initial

brainstorming session might serve exclusively to produce the definitions of the programme goals. Additional readings on the theoretical base of the programme goals could then be assigned as preparation for the subsequent meetings for drawing up the behavioural guidelines associated with each goal.

One teacher objected to the formality of the individual teacher presentations at each cooperative feedback session. This teacher agreed that the agendas of the cooperative feedback sessions were both practical and thorough. However, she admitted that she found them somewhat threatening. Perhaps the purpose of the cooperative feedback sessions had not been adequately conveyed to the teachers. They were not meant to be occasions for teachers to judge each other's or for the director to judge the teachers' behaviours. On the contrary, they were intended to promote honest non-judgemental discussion among the staff. The presentations were primarily structured opportunities for each individual teacher to convey her impressions, prior to the general group discussion, of her own video taped teaching behaviours associated with the goal under consideration. The teachers were encouraged to convey their unique experiences in implementing certain teaching behaviours with specific children in specific teaching situations. Such discussion was expected to provide not only refinements in the behavioural guidelines associated with each goal, but also insights into how to handle specific individual children while attempting to implement a programme goal.

During the final brainstorming session, the teachers based

their individual presentations upon their assessments of their video taped teaching behaviours against all four goals' behavioural guidelines. All teachers admitted having difficulty keeping track of all the behaviours that they were to examine. However, they believed that having this opportunity to consider the interrelations between the range of teaching behaviours was very appropriate after having focused upon each individual goal. Interestingly, one teacher suggested that, ideally, the Goals-Guide-Behaviours evaluation strategy should be carried through twice. This would allow the teachers to have a second opportunity to assess their video taped teaching behaviours against each goal's behavioural guideline. All teachers agreed that they would recommend such a schedule. After they had had the opportunity to assess their behaviours against all four behavioural guidelines together, they felt they would have different points of view when using each individual goal's behavioural guideline for a second time.

The Differing Frequencies of Occurrence of Certain Teaching Behaviours in the Four Areas

When the video taping schedule was initially determined, the teachers' area rotations were considered in order to ensure that the teachers had at least two opportunities to assess their video taped behaviours filmed in each area of activity. Because each of the four areas of activity were equally represented within each week's video tapes, it was decided that a multi-variate analysis of variance to test for an area effect would reveal the degree to which the variance in the data was accounted

for by it. Moreover the mean frequency differences of some teaching behaviours which were observed to exist between the four areas were of interest in and of themselves. From an examination of the mean frequencies of these dependent variables, it is possible to describe for each area of activity the characteristic features of the teachers' behaviours that were evident on the video tapes.

There were 12 teaching behaviours which had been observed to occur relatively more frequently in one area in comparison to the others. Three predominant patterns of relatively higher and lower mean frequencies existed across the four areas. One-half of the behaviours which were observed to occur most frequently in the art area, were generally least frequently observed in the snack area. Two which occurred most frequently in the snack area were observed to occur least frequently in the art area. Finally, one-third of the teacher behaviours which were observed to occur most frequently in the active area tended to be least frequently observed in the quiet area. These patterns of frequency differences across the four areas will now be described, for each dependent variable, as an attempt to provide explanations for the types of teaching behaviours which characterized each area.

Among those dependent variables which had occurred most frequently in the art area, some showed more occurrences in comparison to others. Such very frequent teaching behaviours as a teacher's encouraging a child's initiative in any form (SLOC10) and a teacher's helping a child appreciate his own

actions (SCRE2) characterized the teacher-child interactions in the art area. One explanation for this finding may be the teachers' tendency to acknowledge and comment upon childrens' accomplishments, such as the completion of a painting or drawing, in this area. The activity in the art area most often centred around the use of materials for promoting the development of small-motor coordination and for promoting an appreciation of different ways that materials could be employed. One teacher behaviour namely SCRE3, which was observed to occur relatively most often in the art area characterized a large proportion of the teachers' supportive communication with the children. The teachers attempted to promote the children's appreciation of the medium in use, and to promote their initiation of new means of using the medium by encouraging and praising their sustained activity (SCRE3).

Another teaching behaviour which was observed to take place most frequently in the art area was a teacher's describing an object's representation (SREPl). This behaviour was typical of the teachers' comments upon a child's accomplishment in the art area. Interestingly, the mean frequencies of occurrence of this teacher behaviour were the same in the quiet and snack areas. They were slightly lower than those recorded for the art area, and relatively much greater than those recorded for the active area. Because the discussions of the objects in use in both the art and quiet areas and food items available in the snack area centred around their representations in words, sounds or pictures, it is not surprising that this teacher

behaviour was characteristic of the art, quiet and snack areas but not the active area.

Two other types of teacher behaviours namely SINTER1 and SREP5, were observed to occur relatively most often in the art area and least often in the snack area. Moreover, the relative average frequencies of occurrence of a teacher's following-up on a commitment to a child (SINTER1) and a teacher's helping a child predict the effect of his actions (SREP5) were substantially lower than those frequencies recorded for a teacher's encouraging and praising a child's sustained activity (SCRE3). Because the activity in the snack area was generally limited to sitting at the table while eating snack, the group interaction was characterized by conversation. Most frequently, the teachers were preoccupied with the distribution of snack portions and the checking of the children's attendance at snack. Consequently, the opportunities for the three behaviours described above were much more limited in the snack area in comparison to the art area.

The only two teacher behaviours which were observed to occur relatively more frequently in the snack area in comparison to the other areas were a teacher's encouraging material replacement after its use (SLOC3) and a teacher's encouraging a child to cooperate with the plans and to respect the property of others (SINTER5). On the average, SLOC3 occurred quite infrequently in comparison to SINTER5. Because the teachers were often required to remind the children to dispose of their paper cups or plates which they used during snack (SLOC3),

this behaviour occurred more frequently in the snack area. Often, at the beginning of the snack period, the teachers encouraged certain children to wait for their snack until the others who had arrived earlier had finished. This often necessitated the teacher's acknowledging the order of each child's arrival at snack, after all the chairs at the snack table had been filled. As soon as one chair had been vacated, the teacher suggested that the child next in line should come to have snack. This type of teacher behaviour typifies a teacher's encouraging a child to respect the property of others (SINTER5) at snack.

Both SLOC3 and SINTER5 were observed to occur relatively least frequently in the art area. Since the children usually worked individually in the art area, the teachers were not encouraging the children to cooperate with the plans of others. Moreover, a wide selection of the art area materials available were most often arranged on the art tables and remained there for a day's session. Therefore, the teachers did not have to remind the children to replace the materials they had used as often as was the case in the snack area.

Four different teaching behaviours were observed to occur relatively most frequently in the active area. Because their average mean frequencies of occurrence were relatively very low, they were grouped among those dependent variables which had been observed to occur relatively infrequently on the video tapes. These behaviours were, a teacher's encouraging a child to respect other's needs and personal space (SINTER8), a

teacher's providing a child with opportunities for imitative behaviour (SREP2), a teacher's drawing attention to and acting on a child's innovative behaviour (SCRE1), and a teacher's exposing a child to the value of the creative expression of others (SCRE5). Because the children engaged in a great deal more large-scale physical activity in the active area compared with the other areas, it seems logical that the teachers would more often encourage the children to respect another's personal space in that area (SINTER8). Children's imitative behaviours often involved large-motor physical movements and imitative sounds. Because such types of behaviours were restricted to the active area, the teacher's encouraging of imitative behaviours (SREP2) was most often observed in the active area and least often in the snack area.

The finding that the teachers drew attention to and acted upon a child's innovative behaviours (SCRE1) more often in the active area may be interpreted to mean that the teachers became more involved and often active participants in the children's play in the active area in comparison to the other areas. The one other teacher behaviour, namely SCRE5, that was relatively most often observed in the active area might have occurred within the context of a teacher's calling attention to or acting on a child's innovative behaviours. A teacher's conveying the value of one child's creative expression to others, (SCRE5), may have coincided with the teacher's participation in a group of children's active area play.

In summary, the differing mean frequencies of occurrence

of some of the teaching behaviours in the four areas demonstrated that they were not all as universally distributed across the four areas as the teachers expected. These findings would enable the teachers to judge the degree to which they were implementing the behaviours associated with each programme goal in each area.

References

Akers, M. E. Prologue: The why of early childhood education..

In I. J. Gordon (Ed.), Early Childhood Education, The Seventy-first Yearbook of the National Society for the Study of Education, Part II. Chicago: University of Chicago Press, 1972, 1-12.

Alkin, M. C. Evaluation theory development. Evaluation Comment, 1969, 2(1), 2-7.

Appleford, B., Fralick, P., & Ryan, T. J. Teacher-child Interactions as Related to Sex, Socio-Economic Status and Physical Attractiveness. Paper presented at C. P. A. annual convention, June 1976.

Baker, H. Film and videotape feedback: a review of the literature. Report Series No. 53, Research and Development Centre for Teacher Education. Austin: University of Texas, 1970.

Bedics, R. A., & Webb, J. H. Measuring the Self-Evaluation of Teaching Behaviour Through the Use of Videotape. Washington, D. C.: U. S. Office of Education, August, 1971. Educational Resources Information Center Report, ED 051 079.

Bend, E. The impact of the social setting upon evaluative research. In Evaluative Research: Strategies and Methods. Pittsburgh, Pa.: American Institutes for Research, 1970, 109-129.

Bereiter, C. An academic preschool for disadvantaged children: conclusions from evaluation studies. In J. C. Stanley (Ed.), Preschool Programs for the Disadvantaged: five experimental approaches to early childhood education. Baltimore: The Johns Hopkins University Press, 1972, 1-21.

- Bereiter, C., & Engelmann, S. Teaching Disadvantaged Children in the Preschool. New Jersey: Prentice Hall, 1966.
- Biddle, Bruce J. Methods and concepts in classroom research. Review of Educational Research, 1967, 37(3), 337-357.
- Blank, M., & Solomon, F. A tutorial language program to develop abstract thinking in socially disadvantaged preschool children. Child Development, 1968, 39(2), 379-389.
- Bloom, B. S. Stability and Change in Human Characteristics. New York: Wiley, 1964.
- Borich, G. D., & Drezek, S. F. Evaluating instructional transactions. In G. D. Borich (Ed.), Evaluating Educational Programs and Products. Englewood Cliffs, N.J.: Educational Technology Publications, 1974, pp. 312-340.
- Bronfenbrenner, U. Early deprivation in mammals and man. In G. Newton (Ed.), Early Experience and Behavior. Springfield, Illinois: Thomas, 1968.
- Bronfenbrenner, U. Is early intervention effective? In M. Guttentag and E. L. Struening (Eds.), Handbook of Evaluation Research, Vol. II. Beverly Hills: Sage Publications, 1975, 519-604.
- Bronfenbrenner, U. The experimental ecology of education. Teachers College Record, 1976, 78(2), 157-204.
- Campbell, D. T. Assessing the impact of planned social change. In G. M. Lyons (Ed.), Social Research and Public Policies. Hanover, New Hampshire: University Press of New England, 1975, pp. 3-45.

- Campbell, D. T., & Erlebacher, A. How regression artifacts in quasi-experimental evaluation can mistakenly make compensatory education look harmful. In J. Hellmuth (Ed.), Disadvantaged Child, Vol. 3. New York: Brunner/Mazel, 1970, 185-210.
- Caro, F. G. Issues in the evaluation of social programs. Review of Educational Research, 1971, 41, 87-114.
- Carter, N., & Wharf, B. Evaluating Social Development Programs. Ottawa: The Canadian Council on Social Development, 1973.
- Cicirelli, V. G. The impact of Head Start: a reply to the report analysis. Harvard Educational Review, 1970, 40, 105-129. (a)
- Cicirelli, V. G. The relevance of the regression artifact problem to the Westinghouse-Ohio evaluation of Head Start: a reply to Campbell and Erlebacher. In J. Hellmuth (Ed.), Disadvantaged Child, Vol. 3. New York: Brunner/Mazel, 1970. (b)
- Clarke, S. C. T. Designs for programs of teacher education. In B. O. Smith (Ed.), Research in Teacher Education: a symposium. Englewood Cliffs, New Jersey: Prentice Hall, 1971, 119-157.
- Cohen, D. K. Politics and research: evaluation of social action programs in education. Review of Educational Research, 1970, 40(2), 213-237.
- Crandall, C. R., & Shibata, K. E. A Guide to Implementing the Video Inservice Program. Milford, Nebraska: Nebraska Educational Service Unit, 1969.

Denenberg, V. H. (Ed.) Education of the Infant and Young Child.
New York: Academic Press, 1970.

Deutsch, M. Curriculum, parent program, in-service training,
extra-mural training, and dissemination. Interim Progress
Report of the Institute for Developmental Studies, November,
1967.

Dickson, G. E. Educational Specifications for a Comprehensive
Elementary Teacher Education Program. Washington, D. C.:
U. S. O. E. Bureau of Research, U. S. Government Printing
Office; OE 58023, 1968.

Dunkin, M. J., & Biddle, B. J. The Study of Teaching. New York:
Holt, Rinehart and Winston, Inc., 1974.

Ellett, L. E., & Smith, E. P. Improving performance of classroom
teachers through videotaping and self-evaluation: AV
Communication Review, 1975, 23(3), 277-288.

Emmer, E. T., & Peck, R. F. Dimensions of classroom behavior.
Journal of Educational Psychology, 1973, 64(2), 223-240.

Erickson, E. L., McMillan, J., Bennell, J., Hoffman, L., &
Callahan, O.D. Experiments in Head Start and early education:
Curriculum structures and teacher attitudes. Washington, D. C.:
Office of Economic Opportunity, Project Head Start, 1969.

Evans, J. W., & Schiller, J. How preoccupation with possible
regression artifacts can lead to a faulty strategy for the
evaluation of social action programs: a reply to Campbell
and Erlebacher. In J. Hellmuth (Ed.), Disadvantaged Child,
Vol. 3. New York: Brunner/Mazel, 1970, 216-220.

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- Ezrin, S. An operational evaluation of a preschool for Canadian disadvantaged children. Unpublished Master's thesis, Carleton University, 1971.
- Ferman, L. A. Some perspectives on evaluating social welfare programs. Annals of the American Academy, 1969, 385 (Sept.), 143-156.
- Flanders, N. A. Analyzing Teacher Behaviour. Don Mills, Ontario: Addison-Wesley, 1970.
- Fowler, W. Cognitive learning in infancy and early childhood. Psychological Bulletin, 1962, 59, 116-152.
- Fowler, W. The dimensions for environmental control over developmental learning. Psychologia Wychowawcza, 1967, 10(3), 265-281; 10(4), 385-397.
- Freeman, H., & Sherwood, C. C. Research in large-scale intervention programs. Journal of Social Issues, 1965, 21(1), 11-28.
- Good, T. L., & Brophy, J. E. Looking in Classrooms. New York: Harper and Row, 1973.
- Goodlad, J. I. Curriculum: state of the field. Review of Educational Research, 1969, 39(3), 367-375.
- Gooler, D. D., & Grotelueschen, A. Process accountability in curriculum development. In F. M. Connelly, J. Herbert and J. Weiss (Eds.), Curriculum Theory Network, Special Issue, No. 1, Fall. Toronto: Ontario Institute for Studies in Education, 1970.
- Gordon, P. S. Early Child Stimulation Through Parent Education. Paper presented at American Psychological Association Convention. Washington, D. C., Sept., 1969.

Gordon, I. J., & Jester, R. E. Techniques of observing teaching in early childhood and outcomes of particular procedures.

In R. M. W. Travers (Ed.), Second Handbook of Research on Teaching. Chicago: Rand McNally, 1973, 184-217.

Gray, S. W., & Klaus, R. A. An experimental preschool for culturally deprived children. Child Development, 1965, 36, 887-898.

Guba, E. G. The failure of educational evaluation. Educational Technology, 1969, 9(5), 29-38.

Gurel, L. The human side of evaluating human service programs: problems and prospects. In M. Guttentag and E. L. Struening, (Eds.), Handbook of Evaluation Research. Vol. II. Beverly Hills, Calif.: Sage Publications, 1975, 11-28.

Guttentag, M. Models and methods in evaluation research. Journal of the Theory of Social Behavior, 1971, 1(1), 76-95.

Halsey, A. H. (Ed.) Educational Priority. Vol. I: E. P. A. problems and policies. London: Her Majesty's Stationery Office, 1972.

Harsh, J. R. A Look at Teacher Evaluation. Paper presented at the Annual Conference of the American Association of School Personnel Administrators, Las Vegas, 1970.

Hatton, L. J. B. Teacher speech with preschoolers from two socio-economic classes. Unpublished B. A. (Hons.) thesis, Carleton University, 1973.

Hawkrige, D. G., Chalupsky, A. B., & Roberts, A. O. A Study of Selected Exemplary Programs for the Education of Disadvantaged Children. American Institutes for Research, Palo Alto, California. Final Report to Office of Education, Parts I, and II, 1968. (Ed 023 776, ED 023 777).

Horowitz, F. D., & Paden, L. Y. The effectiveness of environmental intervention programs. In B. M. Caldwell and H. N. Ricciuti (Eds.), Review of Child Development Research, Vol. III, Child Development and Social Policy. Chicago: University of Chicago Press, 1973, 331-402.

Hunt, J. McV. Intelligence and Experience. New York: Ronald, 1961.

Israel, J. W. Innovation in Evaluation: Teacher Assessment by Objectives. Unpublished course paper, 1969. (available from ERIC Document Reproduction Service ED 029 625).

Jensen, P. H. A Study of Self-Evaluation Applied to In-Service Education Including an Annotated Bibliography. Monmouth, Oregon: Teaching Research Division, Oregon State System of Higher Education, September 1968.

Johnson, G. H. The purpose of evaluation and the role of the evaluator. In Evaluative Research: Strategies and Methods. Pittsburgh, Pa.: American Institutes for Research, 1970, 1-23.

Kallenback, W. Microteaching as a Teaching Methodology. Paper presented at a conference on Instructional Methods and Teacher Behavior. Berkley, Calif., 1966.

Karnes, M. B., Hodgins, A., & Teska, J. A. An evaluation of two preschool programs for disadvantaged children: a traditional and a highly structured experimental preschool. Exceptional Children, 1968, 34, 667-676.

Karnes, M. B., Hodgins, A. S., Teska, J. A., & Kirk, S. A. Research and development program on preschool disadvantaged children. Vol. I. Washington, D. C.: U. S. Office of Education, 1969.

- Kim, J. Factor analysis.. In N. H. Nie, C. H. Hull, J. G. Jenkins, K. Steinbrenner, & D. H. Bent (Eds.), Statistical Package for the Social Sciences, second edition. Toronto: McGraw-Hill, 1975, 469-514.
- Kirk, R. E. Experimental Design: Procedures for the Behavioural Sciences. Belmont, California: Books/Cole, 1968.
- Kouwenberg, C. Teachers' verbalizations with respect to three and four year olds from two socio-economic classes. Unpublished Master's thesis, Carleton University, 1973.
- Little, A., & Smith, G. A. N. Strategies of Compensation: A review of educational projects for the disadvantaged in the United States. Paris: O. E. C. D., 1971.
- Mann, F., & Likert, R. The need for research on the communication of research results (1952). In F. G. Caro (Ed.), Readings in Evaluation Research. New York: Russell Sage Foundation, 1971, 143-151.
- McDill, E. L., McDill, M. S., & Sprehe, J. T. Strategies for Success in Compensatory Education: An appraisal of evaluation research. Baltimore: The Johns Hopkins Press, 1969.
- McDonald, F. J., & Allen, D. W. Training effects of feedback and modelling procedures on teaching performance. (Technical Report No. 3, Stanford Centre for Research and Development in Teaching). Stanford, Calif.: Stanford University, School of Education, 1967.
- McNeil, J. D., & Popham, W. J. The assessment of teacher competence. In R. M. W. Travers (Ed.), Second Handbook of Research on Teaching. Chicago: Rand McNally, 1973, 218-244.

- Medley, D. M. The research context and the goals of teacher education. In G. E. Dickson (Ed.), Elementary Specifications for a Comprehensive Elementary Teacher Education Program. Washington, D. C.: U. S. O. E. Bureau of Research, U. S. Government Printing Office, 1968, 109-124.
- Medley, D. M., & Mitzel, H. E. A technique for measuring classroom behaviour. Journal of Educational Psychology, 1958, 49(2), 86-92.
- Medley, D. M., & Mitzel, H. E. Measuring classroom behavior by systematic observation. In N. L. Gage (Ed.), Handbook of Research on Teaching. Chicago: Rand McNally, 1963, 247-328.
- Meier, J. H., Nimnicht, G., & McAfee. An autotelic responsive environment nursery school for deprived children. In J. Hellmuth (Ed.), Disadvantaged Child, Vol. II. New York: Brunner/Mazel, 1967, 299-398.
- Miller, L. B., & Dyer, J. L. Experimental variation of Head Start curricula: A comparison of current approaches. Child Development Laboratory, University of Louisville, Louisville Kentucky, May, 1970.
- Miller, L. B., & Dyer, J. L. Four preschool programs: their dimensions and effects. Chicago: University of Chicago Press, 1975. Monographs of the Society for Research in Child Development, Serial No. 162, Vol. 40, No. 5-6, October.
- Moffitt, A. R., & Ryan, T. J. Schools without curricula: evaluation of some early childhood programs. Canadian Journal of Behavioral Sciences, 1975, 7(4), 429-445.

Musella, D. Improving teacher evaluation. Journal of Teacher Education, 1970, 21(1), 15-21.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. (Eds.), Statistical Package for the Social Sciences, second edition. Toronto: McGraw-Hill, 1975.

Overall, J. E., & Klett, C. J. Applied Multivariate Analysis. Toronto: McGraw-Hill, 1972.

Overall, J. E., & Spiegel, D. K. Concerning least squares analysis of experimental data. Psychological Bulletin, 1969, 72(5), 311-322.

Parlett, M., & Hamilton, D. Evaluation as Illumination: a new approach to the study of innovatory programs. Centre for Research in the Educational Sciences, University of Edinburgh, Occasional Paper-9, 1972.

Pederson, K. G. Improving teacher effectiveness. Education Canada, 1975, Fall, 12-20.

Posner, J. Evaluation of "Successful" Projects in Compensatory Education. U. S. Office of Education, Office in Planning and Evaluation, occasional paper no. 8, 1968.

Provus, M. The Discrepancy Evaluation Model: An Approach to Local Program Improvement and Development. Pittsburgh: Pittsburgh Public Schools, 1969.

Rashid, M. The teacher, teacher style and classroom management. In E. Grotberg (Ed.), Critical Issues in Research Related to Disadvantaged Children. Princeton, New Jersey: Educational Testing Service, 1969.

Reed, K. The role of videotape recordings in the training of teachers. International Journal of Instructional Media, 1975-76, 3(2), 117-124. (a)

Reed, K. VTR and teacher education: what does the research say? International Journal of Instructional Media, 1975-76, 3(4), 285-292. (b)

Rist, R. C. Student social class and teacher expectations: the self-fulfilling prophecy in ghetto education. Harvard Educational Review, 1970, 40(3), 411-451.

Roberson, E. W. Teacher self-appraisal: a way to improve instruction. Journal of Teacher Education, 1971, 22, 469-473.

Rosenshine, B. Evaluation of classroom instruction. Review of Educational Research, 1970, 40(2), 279-297.

Rosenshine, B., & Furst, N. The use of direct observation to study teaching. In R. M. W. Travers (Ed.), Second Handbook of Research on Teaching. Chicago: Rand McNally, 1973, 122-183.

Rutherford, R. B. Jr. The effects of a model videotape and feedback videotapes on the teaching styles of teachers in training. The Journal of Experimental Education, 1973, 42(1), 64-69.

Rutman, L. Planning an Evaluation Study. Paper prepared for the Evaluation Research Training Institute at Carleton University, Ottawa, June 1976.

Ryan, T. J. Promoting child development through a program of home visiting. Canadian Journal of Behavioral Sciences, 1976, 8(1), 102-105.

Ryan, T. J., & Moffitt, A. R: Evaluation of preschool programs.

The Canadian Psychologist, 1974, 15(3), 205-219.

Salomon, G., & McDonald, F. G. Pretest and posttest reactions to self-viewing one's teaching performance on videotape.

Journal of Educational Psychology, 1970, 61(4), 280-286.

Sanders, J. R., & Cunningham, D. J. A structure for formative evaluation in product development. Review of Educational

Research, 1973, 43(2), 217-236.

Schaefer, E. S., & Aronson, M. Infant Education Research

Project: implementation and implications of a home tutoring project. In R. K. Parker (Ed.), The Preschool in Action:

Exploring early childhood programs. Boston: Allyn and Bacon, Inc., 1972, 410-436.

Shibata, K. E., & Roberson, E. W. Teacher Guide for Self-Appraisal. Video Inservice Program (ESEA, Title III).

Milford, Nebraska: Nebraska Educational Service Unit No. 6, 1970.

Siegel, S. Nonparametric Statistics for the Behavioural Sciences. Toronto: McGraw-Hill, 1956.

Simpson, R. H. Teacher Self-Evaluation. New York: Macmillan, 1966.

Skeels, H. M. Adult status of children with contrasting early life experiences. Monographs of the Society for Research in Child Development, 1966, 31 (Serial #105).

Smith, M. S., & Bissell, J. S. Report analysis: The impact of Head Start. Harvard Educational Review, 1970, 40 51-104.

Soar, R. S., & Soar, R. M. An empirical analysis of selected Follow Through programs: an example of a process approach to evaluation. In I. J. Gordon (Ed.), Early Childhood Education. The Seventy-first Yearbook of the National Society for the Study of Education, Part II. Chicago: University of Chicago Press, 1972, 229-259.

Sowards, G. W. A Model for the Preparation of Elementary School Teachers. Washington, D. C.: U. S. O. E. Bureau of Research, U. S. Government Printing Office, 1968.

Stake, R. E. The countenance of educational evaluation. Teachers College Record, 1967, 68, 523-540.

Stake, R. E., & Denny, T. Needed concepts and techniques for utilizing more fully the potential of evaluation. In R. W. Tyler (Ed.), Educational Evaluation: New Roles, New Means. The 68th Yearbook of the National Society for the Study of Education, Part II. Chicago: National Society for the Study of Education, 1969.

Stufflebeam, D. L. Toward a science of educational evaluation. Educational Technology. 1968, 8(14), 5-12.

Stufflebeam, D. L., Foley, W. J., Gephart, W. J., Guba, E. G., Hammond, R. L., Merriman, H. O., & Provus, M. M. Educational Evaluation and Decision-making in Education. Itasca, Illinois: Peacock, 1971.

Suchman, E. A. Action for what? A critique of evaluative research. In C. H. Weiss (Ed.), Evaluating Action Programs. Boston: Allyn and Bacon, 1972, 52-84.

Tavris, C. Compensatory education: the glass is half full.

Psychology Today, 1976, 10(4), 63-74.

Teacher Evaluation: Interface on Learning. Columbus, Ohio:

Ohio Education Association, 1970.

Tuckman, B. W. Feedback and the change process. Phi Delta

Kappan, 1976, 57, 341-344.

Warwick, P. V. Canonical correlation analysis: subprogram,

cancorr. In N. H. Nie, C. H. Hull, J. G. Jenkins,

K. Steinbrenner & D. H. Bent (Eds.), Statistical Package

for the Social Sciences, second edition. Toronto: McGraw-

Hill, 1975, 515-527.

Weikart, D. P. Relationship of curriculum, teaching and

learning in preschool education. In J. C. Stanley (Ed.),

Preschool Programs for the Disadvantaged. Baltimore:

Johns Hopkins, 1972, 22-66.

Weikart, D. P., & Lambie, D. Z. Preschool intervention

through a home teaching project. In J. Hellmuth (Ed.),

The Disadvantaged Child. Seattle: Special Child Publications,

1968.

Weikart, D. P., Rogers, E., Adcock, C., & McClelland D.

The Cognitively Oriented Curriculum. Washington, D. C.:

Publications, National Association for the Education of

Young Children, 1971.

Weiss, C. H. Evaluating educational and social action

programs: A "treeful of owls". In C. H. Weiss (Ed.),

Evaluating Action Programs. Boston: Allyn and Bacon,

1972, 3-27. (a)

Weiss, C. H. Utilization of evaluation toward comparative study. In C. H. Weiss (Ed.), Evaluating Action Programs. Boston: Allyn and Bacon, 1972, 318-33. (b)

Weiss, R. S., & Rein, M. The evaluation of broad-aim programs: difficulties in experimental design and an alternative. In C. H. Weiss (Ed.), Evaluating Action Programs. Boston: Allyn and Bacon, Inc., 1972, 236-249.

Westinghouse Learning Corporation. The Impact of Head Start, an Evaluation of the Effect of Head Start on Children's Cognitive and Affective Development. Vol. I, Text and Appendices A-E. (Ohio University) Washington, D. C.: Clearinghouse for Federal Scientific and Technical Information, Department of Commerce, National Bureau of Standards, 1969.

Williams, W., & Evans, J. W. The politics of evaluation: the case of Head Start. Annals of the American Academy of Political and Social Sciences, 1969, 385, 118-132.

Winkelstein, E., Rubovits, P. C., Tucker, D. G., & Barden, M. In-Service Training Models for Early Childhood Education Programs. ERIC/ECE. Urbana, Illinois: Publications Office, College of Education, University of Illinois, June 1976.

Worthen, B. R., & Sanders, J. R. Educational Evaluation: Theory and Practice. Worthington, Ohio. Charles A. Jones, 1973.

Wright, M. J. Changes in the social competence of Canadian preschool and day nursery children of low and high socio-economic status. Interchange, 1975, 6(4), 16-26.

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Appendix A

Goal Definitions and the Behavioural Means of Implementing Each Goal

The programme goal - LOCUS OF CONTROL

- to develop a child's internal sense of control, a feeling toward valuing one's own perceptions and taking the responsibility for one's own decisions
- to promote a child's self-respect, self-worth, confidence and trust
- to develop a child's internal sense of freedom, leading to a greater sense of independence and joy in exploration
- to develop a child's perseverance, reflectivity, and sense of competence in physical, verbal and social problem-solving

The teachers' description of how they would like to implement this goal:

1. if a child is having trouble with continued attention to a task - teacher attempts to bring child back to focus attention on an aspect of the activity, or teacher provides a strategy for carrying out a task
2. if a child displays attention-seeking behaviour, e.g. disruptive, overly dependent, maladaptive (non-involvement, screaming), aggressive behaviours, teacher suggests another way to deal with the situation, but teacher goes on ignoring the attention-seeking behaviour, as long as possible, after suggesting an alternative to the child
3. teacher consistently insists that material be replaced where it was originally shelved unless other children wish to continue using the material - in the active area the clean-up may not occur until the end of the programme - one additional

LOCUS OF CONTROL (continued)

exception to the replacing of materials - if a child experiences failure in completing a task, teacher attempts to provide a strategy for succeeding at the task, if child still fails to grasp the task, then, teacher should redirect child to another task which presents some challenge but at which child can succeed

4. teacher allows child time to solve problems on her/his own, e.g. arising in social encounters, in the use of materials, in the choice of materials, in the managing of clothing; however teacher intervenes before a situation reaches frustration and destruction
5. teacher provides supportive and encouraging gestures such as a smile, a nod, a verbal compliment, proximity, physical contact which might or might not accompany a direct interaction with the child
6. teacher demonstrates her awareness of a child's presence and her valuing of a child's being, and teacher comments on a child's individuality in a positive sense:
 - teacher notices what individual children value about themselves and teacher will attempt to expand upon other aspects that the child may come to value
 - teacher addresses child by name and encourages child to address her by name
 - teacher listens and attempts to understand the meaning of a child's communication and to respond to it meaningfully
 - teacher repeats what a child has said to ensure that she has

LOCUS OF CONTROL (continued)

- understood the child's communication and to encourage the child to continue to express her/his feelings and ideas
- teacher notices a child's special events such as a birthday or a child's return to school after an absence
 - teacher encourages a child to talk about personal experiences which occur both within and outside of school
 - teacher encourages a child to express her/his feelings about accomplishments as well as the process leading up to the finished product so that the child would learn to value her/his own effort
7. teacher notices and encourages child's initiative in choice of material and activity.
 8. teacher acknowledges a child's involvement in and sustained attention to a task
 9. teacher recognizes a child's competence by suggesting that she/he show another child or a teacher how she/he has done something
 10. teacher encourages a child to wait her/his turn while teacher talks with someone else or does something with someone else
 11. teacher accepts the legitimacy of a child's fantasy play or story-telling but helps the child to distinguish between fantasy and reality as well as to know the limits of the fantasy for her/himself and for others; teacher encourages a child to reality-test

The programme goal - INTERRELATIONSHIPS

- to promote meaningful relationships with peers and adults which

INTERRELATIONSHIPS (continued)

- are warm, affectionate, trusting and honest
- to encourage laughter and the development of a sense of humour
- to promote reciprocal respect for the materials, property, ideas and feelings of other people

The teachers' description of how they would like to implement this goal:

1. teacher predictably follows-up on carrying out a commitment to a child
2. teacher admits to human frailties, i.e. teacher is to be trusted but child should learn to accept the possibility that teacher may fail to carry something through
3. teacher calls attention to another child's words and non-verbal communication and feelings in order to encourage a child to listen to others and to see things from another person's perspective
4. teacher asks child to try to think about how she/he would feel in a situation in which another child is engaged
5. teacher encourages a child to cooperate with another child's plans and to respect another child's property
6. teacher shares a range of verbal communications, facial expressions and gestures with children to convey praise, support, encouragement, direction and humour, e.g. through eye contact
7. teacher initiates an idea for play to include more children in group activities or to extend the current play
8. teacher encourages children to respect the needs of and to refrain from invading another's (a child's or a teacher's)

INTERRELATIONSHIPS (continued)

personal space such as pulling at clothing, taking a seat at someone else's chair

9. teacher verbalizes the consequences of a child's actions for others

10. teacher encourages the development of new social relationships by suggesting common interests among children or among children and adults

The programme goal - REPRESENTATION

-to develop a child's ability to represent experiences and to respond to another's representations

-to develop a shared meaning of symbols

-to promote a child's ability to role-take and respect other's thoughts and feelings

-to promote language development - to develop a child's motivation to use language

-to promote the development of intrinsic rules for using language

-to promote a child's ability to express needs and feelings in a social context

-to develop a child's methods of information-gathering; to develop her/his ability to test the results of actions upon objects, to infer relationships from experiences, to seek information from appropriate sources

The teachers' description of how they would like to implement this goal:

1. teacher points out the relationship between an object and its

REPRESENTATION (continued)

- representation, i.e. hand print and hand, pictures and objects, written and spoken words and objects, and sounds and events
2. teacher provides a child with opportunities to imitate people, objects and animals
 3. teacher exposes child to representations by others so that the child learns to understand them - representations on a variety of levels such as symbols, words, pictures, and works of art
 4. teacher helps child to be aware of shared and unshared symbols and helps a child to distinguish between them, e.g. teacher helps a child understand how her/his words may mean the same or mean something different to others
 5. teacher calls a child's attention to the relationship between his action and its impact on some material; teacher encourages a child to predict the effect of his future actions
 6. teacher encourages a child to use language as well as gestures to express meanings for anything
 7. teacher provides language for a child to help her/him express her/himself, e.g. teacher asks a child questions to help her/him to elaborate on her/his language ..

The programme goal - CREATIVITY

-to promote creative as opposed to stereotyped behaviours in the children

The teachers' description of how they would like to implement this goal:

1. teacher tries to promote a child's individuality by reinforcing

CREATIVITY (continued)

innovative behaviour, that is by noticing it, by commenting on it, by praising it, by calling other people's attention to it, by acting on it, and by asking a child to evaluate it her/himself

2. teacher appreciates what a child does and helps a child appreciate it by noticing it, by commenting on it, by praising it, by calling other people's attention to it, by acting on it, and by asking a child to evaluate it her/himself

3. teacher encourages sustained experiences through the use of materials, through questioning or through the provision of additional props so that a child may initiate new responses and come to appreciate the medium in use

4. teacher helps a child to develop prerequisite competencies and skills such as the use of scissors, paint brushes and rhythms

5. teacher exposes a child to the creative expression of peers and adults in order to convey that the culture in which they live values creative expression and creative behaviours

Appendix B

Design of the Goals-Guide-Behaviours Evaluation Strategy

I Brainstorming Session - November 18

-an opportunity for the teachers and the director to develop an explicit description of their programme goals and the means whereby they would put these goals into practice

II Videotaping, Viewing and Cooperative Feedback Sessions

	Month	Date Schedule	Goal of Interest
(a) evaluator's video-taping of three 10-minute classroom segments per teacher	January	M T W T F 3 4 5 6 7V 10V11V12G13 14 17 18 19 20V21 24V25V26 27 28	locus of control
(b) teacher's meeting to discuss the goal which serves as the guideline for viewing videotapes	February	31 1 2C 3V 4 7V 8V 9G 10 11 14 15 16 17V18 21V22V23 24 25	interrelationships
(c) teacher's viewing of one randomly selected 10-minute videotape segment	March	28 1 2 3 4C 7V 8V 9V 10G11 14 15 16 17 18 21 22 23 24V25 28V29V30 31 1	representation
(d) evaluator's video-taping of three 10-minute classroom segments per teacher	April	4 5 6C 7V 8 11 12V13V14G15 18 19 20 21V22 25V26V27 28 29	creativity

Appendix B (continued)

(e) teacher's viewing of
one randomly selected
10-minute videotape
segment.

(f) cooperative feedback
session

Month	Date Schedule	Goal of Interest
	M T W T F	
May	2 3 <u>C</u> 4 5 <u>V</u> 6	all four goals
	9 <u>V</u> 10 <u>V</u> 11 <u>G</u> 12 13	
	16 17 18 19 <u>V</u> 20 <u>V</u>	
	23 24 <u>V</u> 25 26 27	
June	30 31 1 2 3	

V - videotaping of teachers

G - meeting for checking agreement
on goal definition and means of
implementing it.

C - cooperative feedback session

III Brainstorming Session - June 2

-to give teachers a final opportunity to reconsider their
four programme goal definitions and the descriptions of
how they would like to implement each goal in the classroom

Appendix C

Instructions for Viewing

1. after selecting the assigned tape segment for viewing, indicate its letter-code on the VIEWING RECORD SHEET
2. thread the tape onto the VT machine in the manner shown in the illustration below:

3. put the machine on by pressing the POWER button
4. put the TV on by pulling the volume switch out
5. to advance the tape to the appropriate point for viewing:
 - press the tape counter button to put the count at zero
 - move the silver adjustment arm slowly through FORWARD to PAUSE ; stop at PAUSE ; then slowly shift the arm to FAST FORWARD
 - when the tape reaches within about 10 counts of the appropriate point stop the movement of the tape by first

Appendix C (continued)

positioning the silver adjustment arm onto PAUSE ;
stop at PAUSE ; then point the silver arm to the FORWARD
position and prepare to view after the letter code has
appeared

6. to adjust the TV picture while viewing, turn the two grey knobs on the right side of the TV to adjust brightness and contrast
7. after viewing, REWIND onto the original reel ; please indicate on the VIEWING RECORD SHEET the number of times you viewed the segment in the square corresponding to the day of viewing on the calendar
8. I would appreciate any suggestions for changes in camera work (e.g. zooming) that might improve the quality of the VT record - please list under COMMENTS ON VT CLARITY on the VIEWING RECORD SHEET on the line corresponding to the segment

Appendix D

Agendas of Cooperative Feedback Sessions

Tentative Agenda -- Cooperative Feedback Session #1, February 2

The schedule outlined for this first cooperative feedback session, was drawn up to assist us in ensuring that we cover the various topics at hand within the limited period of time available. As is evident in the agenda, a time slot has been assigned to discussion of the format for cooperative feedback sessions in order that we arrive at an effective agenda which would remain constant for the remaining cooperative feedback sessions.

TIME	TOPIC
8:45	I purpose of cooperative feedback session - explanation and discussion of agenda
	II teachers sharing impressions of videotape-viewing - each teacher will give a presentation of her comments on the videotape segments viewed in terms of the behaviours associated with <u>Locus of Control</u> -each teacher will also be responsible for leading the group discussion which may arise during the time slot to which she has been assigned. (The sequence of teacher presentations was ordered alphabetically according to the first letter in each teacher's name; on subsequent cooperative feedback sessions the teacher presenting last during the previous session will move to the first position and all others will fall back one position.)
9:00	Anita
9:15	Betty

Appendix D (continued)

TIME	TOPIC
9:30	Claudia
9:45	Diane
10:00	III coffee break
10:15	IV discussion of each of the behaviours associated with Locus of Control to determine: (a) the appropriateness of the behaviours listed - perhaps individual behaviours might be redefined, more fully described, eliminated.....
10:45	(b) the need to include descriptions of additional behaviours that appeared on the videotapes to be highly relevant to carrying out the <u>Locus of Control</u> goal in the classroom
11:00	(c) the degree to which individual teachers had difficulty implementing each of the behaviours described
11:30	V wrap-up -- unanswered questions related to viewing procedures, timing of viewing (see calendar on viewing room door), making the most of the viewing experience, agenda for subsequent cooperative feedback sessions

Tentative Agenda -- Cooperative Feedback Session #2, March 4

TIME	TOPIC
3:30	I teachers sharing their impressions of the viewing of their videotapes - each teacher will give a presentation of her comments on the videotape segment viewed in terms of the behaviours associated with <u>Interrelationships</u> - each teacher will also be responsible for leading the group discussion which may arise during the time slot to which she has been assigned
3:30	Diane
3:45	Anita
4:00	Betty.
4:15	Claudia
4:30	II coffee break
4:40	III discussion of each of the behaviours associated with <u>Interrelationships</u> to determine: (a) the appropriateness of the behaviours listed - perhaps individual behaviours might be redefined, more fully described, eliminated...
5:15	(b) the need to include descriptions of additional behaviours that appeared on the videotapes to be

Tentative Agenda -- Cooperative Feedback Session #2, March 4
(continued)

TIME

TOPIC

highly relevant to carrying out the Interrelationships
goal in the classroom

5:30

meeting scheduled to end

Tentative Agenda - Cooperative Feedback Session #3, April 6

TIME

TOPIC

3:30 I teachers sharing their impressions of the viewing of their videotapes -
each teacher will give a presentation of her comments on the videotape segment viewed in terms of the behaviours associated with Representation - each teacher will also be responsible for leading the group discussion which may arise during the time slot to which she has been assigned

3:50 Claudia

4:00 Diane

4:10 Anita

4:20 Betty

4:30 II discussion of each of the behaviours associated with Representation to determine:

- (a) the appropriateness of the behaviours listed - perhaps individual behaviours might be redefined, more fully described, eliminated...
- (b) the need to include descriptions of additional behaviours that appeared on the videotapes to be highly relevant to carrying out the Representation goal in the classroom

Tentative Agenda -- Cooperative Feedback Session #3, April 6
(continued)

TIME

TOPIC

5:15 meeting scheduled to end

Tentative Agenda -- Cooperative Feedback Session #4 May 3

TIME	TOPIC
3:50	I teachers sharing the impressions of the viewing of their videotapes - each teacher will give a presentation of her comments on the videotape segment viewed in terms of the behaviours associated with CREATIVITY - each teacher will also be responsible for leading the group discussion which may arise during the time slot to which she has been assigned
3:50	Betty
4:00	Claudia
4:10	Diane
4:20	Anita
4:30	II discussion of each of the behaviours associated with CREATIVITY to determine: (a) the appropriateness of the behaviours listed - perhaps individual behaviours might be redefined, more fully described, eliminated... (b) the need to include descriptions of additional behaviours that appeared on the videotapes to be highly relevant to carrying out the CREATIVITY goal in the classroom
5:15	meeting scheduled to end

Appendix E

The Goals-Guide-Behaviours Evaluation Strategy:

Final Brainstorming Session Questionnaire

First I would like to thank you for your continued support and patience, through the course of the last six months, as the evaluation strategy was carried out. I do hope that you have found this experience profitable. I expect that you feel some aspects of the design were more useful or meaningful, for you personally, than others. Consequently it is of interest to me to obtain some feedback from you on the various components of the design. I would be most appreciative if you would reflect upon the whole evaluation experience and answer these questions.

1. The component of the Goals-Guide-Behaviours evaluation strategy which had the greatest impact upon your teaching behaviours was:
 - (a) the brainstorming session on goals and behaviours
 - (b) being videotaped in the classroom
 - (c) viewing yourself on videotape
 - (d) viewing yourself on videotape in terms of the list of behaviours for implementing one goal
 - (e) sharing your impressions from viewing yourself on videotape with others at the cooperative feedback sessions
 - (f) listening to others describe their impressions of viewing themselves on videotape at the cooperative feedback sessions
2. Please indicate the ranks you would give to the above six activities if you assigned a rank of 1 to the activity which

Appendix E (continued)

you feel had the greatest impact upon your teaching behaviours, and a rank of 6 to the activity which had the least impact upon your teaching behaviours,

(a) _____, (b) _____, (c) _____, (d) _____, (e) _____, (f) _____.

3. If you were going to use the four goal definitions and descriptions in conducting an in-service teacher training programme, which goal(s) would you

(a) change, to suit your personal beliefs about programming, the least? _____

(b) change the most? _____

(c) not change at all? _____

(d) indicate as the top priority? _____

(e) indicate as the last priority? _____

4. If you were given the opportunity to carry out the Goals-Guide-Behaviours evaluation strategy in your own preschool, what changes, if any, would you recommend in each of the following?

(a) initial brainstorming session (e.g. initial question posed, period for reflection and writing, etc.) _____

(b) videotaping procedures in the classroom (e.g. the positions of the camera, ten-minute videotaping sessions) _____

Appendix E. (continued)

(c) videotaping schedule (e.g. three consecutive days, six days per month, etc.) _____

(d) videotape viewing schedule (e.g. seven days for viewing, etc.) _____

(e) cooperative feedback session schedule (e.g. one per month, etc.) _____

(f) agenda of cooperative feedback sessions (e.g. items on agenda, order of teacher presentations, etc.) _____

Thank you for your cooperation. If you have any further comments please feel free to express them below.

SIGN SYSTEM

observation date _____
 observer _____
 position of sign system in _____
 observation format sequence _____

teacher viewed _____
 tape code _____
 tape segment _____

FOCUS OF CONTROL

t helps resolve c's attention difficulty at task with new strategy					
t suggests alternate more adaptive behavior for disruptive c					
t encourages material replacement after use					
t suggests more developmentally appropriate task for c struggling with self-chosen task					
t allows c time to resolve task difficulty or social disagreement before interfering					
t communicates with c using supportive and encouraging gestures and words					
t acknowledges c's presence, what c values and comments on individuality to encourage c to value self					
t attentive to and responds meaningfully to c's description of personal experience, preference or process leading to end					
t repeats c's words to ensure full understanding and encourage expression of feeling, ideas					
t encourages c's initiative in any form					
t encourages and acknowledges c's sustained involvement at activity					
t encourages skilled c to teach others how to learn skill					
t suggests that c patiently wait turn					
t helps c distinguish personal fantasy play from reality and understand fantasy limits					

CREATIVITY

t draws attention to, praises, acts on c's innovative behavior					
t appreciates and helps c appreciate own action					
t encourages c's sustained experience with and appreciation of media					
t helps c develop skills					
t exposes c to creative expression of others to convey cultural value of same					

INTERRELATIONSHIPS

1.t fulfills commitment to c to develop trusting relationship					
2.t admits own mistake on c					
3.t encourages c to attend to other's verbal or emotional expression, to understand other's perspective					
4.t helps c understand other's situational involvement					
5.t helps c cooperate with plans, respect property of others					
6.t shares range of non-verbal, verbal communications with c					
7.t extends play to include more children					
8.t encourages c to respect others' needs and personal space					
9.t explains effect of c's action					
10.t suggests common interests to promote new social relationships					

REPRESENTATION

1.t describes an object's representation					
2.t encourages imitative behavior					
3.t explains meaning of others' representations					
4.t distinguishes c's own unshared from a group's shared symbols					
5.t explains causality of c's action and the effect to promote c's ability to predict effect					
6.t encourages c's use of language					
7.t provides language to help c's verbal expression					

CATEGORY SYSTEM

observation date _____
 observer _____
 position of category system in
 observation format sequence _____

teacher viewed _____
 tape code _____
 tape segment _____

LOCUS OF CONTROL					
1. DIRECTIVE GUIDANCE AT TASK					
t provides c with new strategy for completing difficult task or t suggests alternate more developmentally appropriate activity					
2. RESOLUTION OF PROLONGED DISRUPTION					
after allowing opportunity for self-initiated problem solving t directs c or group of children into more adaptive behavior or activity					
3. RESPONSIVENESS TO INDIVIDUAL EXPRESSION					
t attentive to and responds meaningfully to c's description of personal experience, process leading to accomplishment, demonstration of skill, initiative and preference					
4. VALUING C'S INDIVIDUALITY					
t acknowledges what c values, comments on individuality to encourage c to value self; t communicates using supportive and encouraging gestures and words, t repeats c's words to ensure full understanding of c's expression of feelings, ideas					
5. PROMOTION OF PATIENCE AND DISCIPLINE					
t acknowledges c's patience in sustained activity, in waiting for a turn, and discipline in replacing materials					
6. DISTINCTION BETWEEN FANTASY AND REALITY					
t explains limits for fantasy play and distinction from reality					

REPRESENTATION					
1. ENCOURAGEMENT IN USE OF REPRESENTATION					
t encourages c's development of own representations - e.g. symbols, imitative behavior and t promotes c's understanding of other's representations- e.g. group symbols					
2. EXPLANATION OF CAUSALITY					
t explains causal relationship between c's action and impact					
3. PROMOTION OF VERBAL EXPRESSION					
t provides c with needed verbal expressions and t encourages c to use language					
OTHER					
-comments-					

END

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08

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FIN