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AN INVESTIGATION OF VERTICALLY GROUPED FIVE, SIX AND SEVEN YEAR OLD CHILDREN IN ELEMENTARY SCHOOLS

by

George Frederick Forsyth

A dissertation
submitted in partial fulfillment
of the requirements for the Degree of
Doctor of Philosophy
Dalhousie University
under regulations of the
Atlantic Institute of Education
August, 1984

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indicate these differences. There were no statistically significant differences found between the experimental-control and control groups. The data for this activity are found in Appendix B, p. 187.

Table 7

Mean Scores of Attainment in Written Expressive Language N = 78

Group	Ex	Ex-C	C
mean	2.8	1.972	2.157
SD	1.029	0.634	0.939
n	25	18	35
	t = 2.9520**		
		t = 2.4680*	
			t = 0.7374

* p < .05
** p < .01

Discussion. The discussion of these data will relate them to the data found in the skills tested on the CTBS reported in Tables 2 and 3. The pattern of reading attainment reflects the development in written language development and lends credence to the relationship of these two school learnings. Approximately forty percent of the cases in the experimental group were moving toward the formal concrete level of language as described by Wilkinson (1980). None of the experimental-control group and approximately 22 percent of the control group had reached this level of development.

This finding, together with the results of the reading tests of the CTBS, would suggest that the cross age grouping as well as the extended period of time in the multi age class has a positive effect on the academic learning of children. Because the experimental group

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ABSTRACT

The purpose of this study was to investigate the general hypothesis that vertically grouped classes have advantages for the development of children not present in horizontally grouped classes. Vertical grouping for the purpose of this study means a school organization in which children remain at least two years with the same class and teacher. Horizontal grouping means a school organization in which children of the same general age remain one year with the same teacher following a specific course of studies.

The research sample was drawn from two schools in the same school district in Nova Scotia, Canada. School A contained three classes of vertically grouped five, six and seven year old children which became the experimental group (n = 72). School B contained one class of seven year old children whose teacher used strategies and classroom organization similar to the experimental group. This class became the experimental-control group (n = 20). School B contained classes of traditionally grouped seven year old children; two classes of which were used as the control group, (n = 39). A total of 131 children made the major sample of the study.

The literature provided direction and background for the design and procedures which used a variety of data collecting techniques including: standardized and non standardized pencil and paper tests; samples of children's work; classroom observations; video taped records; stimulated recall; time sampling; interviews; questionnaires and unobtrusive methods.

In academic achievement no significant differences were found in vocabulary, reading, mathematical problem solving; or development of mathematical understanding. The difference in spelling was in favour of the control group over the experimental-control ($p < .05$) and the control over the experimental group in mathematical concepts

(p approached .05). For creative written expression the difference was in favour of the experimental group over the experimental-control ($p < .01$) and the control groups ($p < .05$).

For socio-emotional development there were no differences among the groups in anxiety toward school nor self-esteem. In social maturity, the experimental group was significantly better than the experimental-control and control groups ($p < .001$). The experimental group had greater emotional security than the experimental-control and control group ($p < .05$). In aspiration in goal setting the control group had higher levels than either the experimental or experimental-control group ($p < .05$).

The learning milieu was found to be different in the organizational patterns. The workload of teachers increased with the number of groups and age levels of the class; while the experimental group had a more diffused social structure but no difference in classroom climate. Interactions across age levels was significantly higher than expected from chance ($p < .001$). Greater flexibility of class organization was found in the experimental classes over the experimental-control and control groups. No differences were found in the retention of pupils while the satisfaction of parents toward their school appeared to favour the vertically grouped classes ($p < .001$).

On the basis of this limited research it has been concluded that vertically grouped classes have advantages for the development of children not found in horizontally grouped classes. Many of these advantages are attributable to the multi-age organization.

Caution by school authorities is advocated in the generalization of these findings. Vertical grouping requires more than administrative organization to be successful.

ACKNOWLEDGMENTS

The following work could not have been completed without the understanding and support of various individuals and groups of individuals. The writer wishes to express sincere appreciation and gratitude to his Superintendent, J. J. Keith and the Kings' County District School Board. These individuals tangibly supported the work in progress by providing time and facilities to conduct the investigation.

Without the understanding and cooperation of the teachers in the study the children involved would not have been as helpful nor as patient as the investigator found them. A very special expression of appreciation goes out to the children who were involved.

Supervisory committee members routinely perform their function, but in this instance they gave continuing and sustained direction. My supervisor, Dr. J. Fasano, proved to be motivator and friend in the pursuit of the research.

Beyond all these, the writer recognizes the burden placed on family during the frenzied period of meeting deadlines; therefore, a special note of love and affection is expressed to them. In particular, the writer acknowledges the sustained support, interest and effort of his wife, Gi, who worked hundreds of hours learning the intricacies of word processing, programming and printing the final document. Love and thanks go to her.

CHAPTER I

INTRODUCTION

Background

In recent years, school systems in most western countries are experiencing declining school enrolments. Demographic studies and projections of school populations indicate a continuing decline during the next decade (Appendix A; Deal, 1985; Shakeshaft & Gardner, 1983). In an attempt to meet this stress, school administrators are seeking alternatives to the traditional single age per grade school organization. Many schools have combined classes and grades to adjust to the decrease in school enrolments. In some instances, combining grades in a single room is preferred to the consolidation of school districts in order to defer the closing of neighbourhood schools.

As a result of this action, in Canada and the United States, for administrative convenience, a number of school systems have combined children with a range of ages in the same classroom. In contrast to this reason for pupil classification, educators in England have for several decades intentionally organized the classes of their infant schools with a multi-age grouping. In a large number of the infant schools of England "vertical", "family" or "vertical all age" grouping is a philosophical approach to the early education of children (Mycock, 1970; Blackie, 1967; Yardley, 1973; Stehney, 1970; Rogers, 1970).

A number of writers have described this school organization as it is applied in England, while educators in Canada and the United

States, to some extent, have emulated the organization in experimental situations in elementary schools (Stehney, 1970; Pavan, 1973; Ford, 1977). The particular school organization in England and North America, however, has been the subject of few research projects.

Because of this, it is difficult for school administrators to make decisions on pupil classification based on theoretical or empirical background. In the immediate future, school authorities will be required to take specific actions in regard to school organization and pupil classification. To make these decisions with greater wisdom it would be advantageous to know whether multi-age grouping has advantages and/or strengths not found in the traditional single-age, single-grade classification. Further it would be beneficial to know parents' reactions to this organization as well as the implications for the workload of teachers.

Purpose of the Study

The purpose of the present investigation, therefore, was to study vertical grouping as a type of pupil classification in Canadian elementary schools.

The investigation was prompted by the questions: " Does vertical grouping have advantages for the development of children over the horizontal pupil classification common to our elementary schools?" "What are the reactions of parents to vertical grouping?" and "How does vertical grouping affect the workload of teachers?"

Subordinate questions were:

1. Does vertical grouping produce greater academic

achievement than does horizontal pupil classification?

2. Does vertrical grouping produce less anxiety toward school for children than does horizontal pupil classification?

3. Does vertical grouping create better self esteem in children than does horizontal pupil classification?

4. Does vertical grouping develop greater social maturity of children than does horizontal pupil classification?

5. Does vertical grouping create greater emotional security of children than does horizontal pupil classification?

6. Does vertical grouping develop higher levels of aspiration to school tasks than does horizontal pupil classification?

7. Does vertical grouping produce a greater work load for teachers than horizontal pupil classification?

8. Does vertical grouping provide better social structure and classroom climate than does horizontal pupil classification?

9. Does vertical grouping increase cross-age interaction among children?

10. Is vertical grouping a more flexible class organization than horizontally grouped classes?

11. Is there a difference between the retention of children in vertically grouped classes and horizontally grouped classes?

12. What is the reaction of parents to vertical grouping?

Literature on curriculum and educational evaluation was used to help develop a design and select methods of data collection to provide the information that was used to answer the questions cited above.

Definition of Terms

Vertical grouping. Vertical grouping as used in this investigation is an organization of pupil placement in which children remain at least two years with the same class and teacher.

Horizontal grouping. Horizontal grouping is the pupil classification which has been traditionally used in schools in North America. In horizontal grouping, children of the same general age are placed together and spend one year with the same teacher doing the work of a specified grade.

Learning milieu. Learning milieu is the social-psychological and physical environment in which students and teathers work together. It includes such things as school organization, school policy, programmes and materials, policy of promotion, methodology, school-community relations, all aspects of schooling that are interrelated to influence the actions of teachers and learners.

Experimental-control group. For the purpose of this study the experimental-control group is a research group which has the age characteristic of the horizontal group but the classroom organization and teaching stratagies of the vertical group.

Informal education. Informal education is the term generally used to designate the educational philosophy of child-centered

education. In Great Britain, where the philosophy is applied, children move through years in school and pursue programmes and activities oriented to the level of development and anticipated needs of individual children.

Infant school. Infant school is the first three years of the English school system. It caters to children from five to seven years of age.

Multi-age grouping. Multi-age grouping is a term synonymous to "vertical grouping" which describes a policy of pupil classification in which children of different ages are grouped and work together in a class.

Continuous progress. Continuous progress is the term that describes a type of promotional policy which allows pupils to move continuously through a designated curriculum at a rate commensurate to their abilities and interests.

Classroom Climate. Class climate refers to the "feeling" or atmosphere of a class and is described as climates of satisfaction, friction, competition, difficulty and cohesiveness.

Primary division. Primary division of elementary school as used in this investigation refers to the first four years of school in

Nova Scotia. It includes the traditional grades primary through three.

Social maturity. Social maturity as used in this investigation is the degree of socialization exhibited by children. Socialization is considered to be a lifelong process, and maturity is the extent to which an individual conforms to the social roles of the group of which he is a member at any point in the socialization process (Havighurst, 1969; Hamilton, 1983).

Delimitations

The basic thrust of this study was to investigate the effects of vertical grouping on children in that organization. The workload of teachers and the reactions of parents to the organization were included to ascertain these dimensions as they might influence administrators in making future decisions about school organizations.

The investigation did not intend to examine teaching stratagies nor the cause and effect of the various teaching styles on children's learning. The investigation was further delimited in as much as the data collected was not intended to determine relationships between the factors investigated.

Limitations

The present study was limited to two schools in Kings County, Nova Scotia, Canada. The investigation had certain limitations in its

scope and design. Because the investigator was working alone in most areas of the research, the amount of information collected was restricted. In an attempt to explore as many aspects as possible of the "learning milieu" of vertically grouped classes, a variety of avenues were investigated. It was not the intention of the investigator, therfore, to use a design that sets limits to variables under consideration. The investigation explored, questioned, and sought answers to questions as they might arise during the progress of the investigation.

Educational research "in situ" is at best difficult. Controls and interventions that are used in laboratory or clinical settings become intrusions to the organization and methodology of the day-to-day activities in an on-going schooling process. The enquiries that were conducted took into consideration the fact that "outside" observers can cause uncustomary behaviours of children. Instrumentation and procedures were as much school-like as activities of this nature can be.

Certain methods and procedures precluded the comparisons of the research groups; e.g. sub-problem 9, the study of cross-age interactions of children. The sheer number of children in the control school and a lack of assistance to collect data of the interactions of children in free play activities required the investigator to limit the observations to the experimental classes and do a comparison of observed interactions with expected interactions of the various ages.

The sample used was limited as there are few classes using vertical grouping in the schools of Nova Scotia. The experimental

group consisted of classes that had been using vertical grouping for five years with, where appropriate, comparisons made to classes that had been functioning in a horizontal pupil classification for many years; while there was only one class in the school system that met the definition of the experimental-control group.

Using such groups created certain difficulties in finding classes with "similar" children for matching purposes. The sample is, therefore, very small and does not contain matched pairs, but has age and period in school as criteria for selection.

The standardized instrument considered for the section of investigating social maturity of children (Vineland Social Maturity Scale) proved unacceptable because it would require extensive work for teachers, who were already heavily involved in their teaching functions. Data for this section were drawn from other sections of the study and from video-taped classroom observations.

Thesis Organization

Chapter 2 of this thesis contains a survey of the literature which presented directions and insights to develop the investigation.

Chapter 3 reports the methods and procedures used in the investigation.

Chapter 4 presents the data, results and analysis followed by a discussion of each sub-problem of the investigation.

Chapter 5 consists of a summary of the investigation together with observations, conjectures, further questions and recommendations for future research.

CHAPTER 2

REVIEW OF LITERATURE

Statements of Theory

Vertical grouping as a type of pupil classification is not a recent innovation, either in England or the United States. It has enjoyed considerable attention, however, as educational reform movements have gained impetus, particularly in the United States. Fromberg (1972) indicates that it has a range of interpretations. This conclusion is drawn from the number of terms found to mean the same type of pupil placement. Anderson (1973) states that "multi-age grouping" is essentially synonymous to "multi-grade", "vertical", "interage", "cross age" or "family grouping". In England, "vertical grouping" and "family grouping" are used interchangeably. It has come to mean, in Mycock's words:

> a method of organization in which individuals of different ages are placed together in the same class as a deliberate educational policy .... with each class containing ... children of all ages ... remaining throughout their infant school stage in the care of one teacher. (Mycock, 1970:35-36)

The significant quality of vertical grouping is that it is a "deliberate educational policy" rather than, as Stehney (1970: 22) points out, "administrative convenience". This distinction is evident in the development of nongradedness in the United States and informal education in England. The nongraded movement has been amply documented by such educators as Goodlad, Anderson, and Hillson and supported by such educational critics as Silberman, Goodman and Featherstone. Anderson (1973), and Goodlad and Anderson (1959) trace

the use of a nongraded school organization to the mid-nineteenth century but concede that patterns of instruction in which learning activities and materials are adapted to the varying levels of a child's achievement were advocated by such educators as Pestalozzi, Froebel and Rousseau. These writers (Goodlad and Anderson) suggest that the present movement to nongradedness and "open education" has been influenced in no small measure by the work and writing of John Dewey and the "progrssive movement" of the early twentieth century, and most recently by the writings of Jean Piaget. The "progressivism education" movement in the United States gave the basic impetus to a consciousness of child as learner. However, Cremin (1961) clarifies the place of progressivism in education as "an adjunct to politics in realizing the promise of American life" (Cremin, 1961:88). It remains, however, that the nongraded school was an attempt to provide administratively for the individual differences of children.

The literature of practice of the nongraded school in the United States (Goodlad and Anderson, 1959; Hillson and Bongo, 1971; Smith, 1970; Glogan and Fessel, 1967; Kuzsman, 1970) reveals a concern for the continuous progress of children through a defined curriculum. The emphasis is on longitudinal organization of programmes and curriculum, with a variety of grouping practices to accomplish the progression of children through the curriculum. Anderson (1973: 7, 21), Hillson (1971: 8, 57) and Goodlad and Anderson (1959: 68-69) briefly discuss "multigraded" or multi-age classes as an administrative technique to group children of similar levels of achievement for instruction in the different areas of the curriculum

or for skill development. Goodlad and Anderson, in the Nongraded Elementary School, give but one example of a school deliberately organized with vertical grouping. The emphasis in the nongraded movement in the United States is a vertical organizational pattern by which children progress through a defined curriculum. The continuous progress of children through the various programmes is based on the aility and rate patterns of children: some move more quickly than others, while some children take additional years to reach the level of proficiency to progress to the next "level" or "unit". In essence the progress of the child is based on the attainment of set criteria of standards of achievement before moving on.

While the guiding principles and beliefs of the nongraded school and its extension, open education, are quite compatible with informal education of England, the implementation in practice has different emphases. In England, informal education has its philosophical origins in the writings of educational reformers such as Pestalazzi, Froebel, Montesorri and Dewey, who all supported the belief that mixed age groupings in a natural societal environment were influencing factors on child development. Mycock (1966) points out that these early reformers incorporated vertical grouping as an integral part of their philosophies rather than for administrative convenience. Their influence on present practices, however is not as great as more recent educators who wrought reforms in England.

The interest and practice of vertical grouping as a school organization has evolved in England during the past two or three decades. In its present state of development it has drawn on the

theories of Piaget, Montesorri and Isaacs. Piaget's stages of child development and the need for extensive interaction with a rich environment have been exemplified in the work and writings of Isaacs (1935). The importance of a structured environment to enhance learning as advocated by Montesorri is found in the programmes described by many writers on the subject of English primary education (see; e.g., Blackie, 1967; Rogers, 1970; Featherstone, 1971; Biggs, 1971).

The influence of these educationalists appears to be greater than earlier educational reformers in shaping the philosophy of the informal education movement in England. Basic to the philosophy is the importance of the child. Rogers (1970) points out that there appears to be a commitment to the idea that children are the most important element of the educational endeavour and that they are to be "heard", "cared for", "consulted" and "respected". This importance of children and respect for them is emphasized by such writers as Moorhouse (1970), Murrow and Murrow (1971), O'Brien (1974), Monolakes (1972) and Yardley, who states:

> child-centered education is not so much a particular set of methods or techniques as an attitude toward children. A deep understanding of the way in which children learn is the basic equipment of the teacher. (Yardley, 1973:33)

This concern for the development of the individual, and the means by which it can take place, has affected the evolution of educational practices in England. While activities in the United States were toward curriculum development with basal programmes, organizational practices that classified pupils by achievemnet or

ability, and highly standardized testing programmes; the trends in England were away from such rigid administrative practices. Promotion policies in England in the early part of the century emphasized the attainment of a particular standard before promotion. These practices were abandoned in the 1920's in favour of age promotion and greater concern for the total development of the individual child (Fisher, 1972:99).

Two factors appear significant in the development of informal education in England. In 1931 and 1933 the Ministry of Education, (now the Department of Education and Science), issued the Hadow reports (Plowden, 1967:1) in which were recommended the general principles of educational practice for children to age eleven. In essence, the report's main themes were that schools should enlarge the experiences of children and involve them more actively in the learning process while assuring individual progress of children. In 1967, the Plowden Report was published by the Department of Educaion and Science (1967). The report, from the Central Advisory Council for Education (England), was four years in preparation and dealt with the growth of the child, the environment of the child and his learning, and an historical perspective of primary education. It developed a recommendation for curriculum and organization, buildings, and the teaching force. Of concern in this study is the fact that the Plowden Report reinforced and supported the basic principles of the Hadow Report; viz., that primary education should deal with individual children and be oriented to the child's involvement with his environment. The report further recommended that pupil placement be

on the basis of peer grouping and not include streaming as suggested in the report of 1931. (Plowden, 1967: para 806-817). These reports became the general guidelines for educational policy in England.

The second significant factor in the development of informal education in England is the autonomy and responsibility of the Local Education Authority (L.E.A.) and its Head Teachers. It is an accepted fact in England that the L.E.A. has full responsibility for the delivery of educational services in its area. This responsibility is vested in the Head Teacher and staff of the individual schools. Blackie (1967) points out that this is unique to England and :

> in no other country in the world is so much responsibility put on the head teacher, or of course so much liberty of decision given to him. (Blackie, 1967:43)

Mycock, writing in Rogers (1970), Teaching in the British Primary School, emphasizes the degree of freedom enjoyed by teachers in England in organizing their schools and deciding on methods and standards for their children.

These two factors: the general principles of education as recommended by the Department of Education and Science, and the freedom for schools to implement their own curriculum, methods and organization, gave rise to the administrative organization of "vertical" or "family" grouping. In rural village schools the pattern was necessitated by the small number of children at the respective age levels. In urban areas, however, the pattern was introduced because teachers and other educators believed that the children from these multi-age schools were developing to a greater degree in attainment, social development, independent activities, and self-esteem than were

children in schools that adhered to "streamed" or age classification.

Extent of Use of Vertical Grouping

While some of the proponents of informal education and vertical grouping extol the advantages of such an administrative structure, the extent to which it is practiced in England is still limited.

The Plowden Report (1967) suggests about one third of the schools function on a model as outlined by the D.E.S., but identified only 109 schools as "of outstanding quality". These schools, however, did include 29,000 children. Another nine percent of the schools surveyed were judged to be good schools with some outstanding features. This survey did not identify the administrative organization but reflected the characteristics of philosophy of British Primary Education.

Rogers (1970) suggests that approximately 25 percent of the schools in England use vertical grouping. In a survey of Schools Council Aims of Primary Education Project, Richards reports:

> just over half the sample [200 schools] employed some form of vertical grouping...[some] were forced to employ some measure of vertical grouping...it does indicate that considerable organizational change has occured in recent years. (Richards, 1974:215)

Because the head teacher and staff are responsible for the individual school, it is understandable that there is no model that can be found for all schools.

Principles and Characteristics

From the literature one can abstract certain principles and characteristics common to the various types of vertical grouping. Mycock (1970:38) emphasizes that vertical grouping is not a method but "the deliberate application of a type of school organization" that better facilitates the application of the statements of philosophy of informal education Fisher states that:

> Family grouping (also known as vertical grouping) cuts across the age range to bring children together in classes; it thus breaks with the tradition of organizing classes on the basis of chronological age (Fisher, 1972:103).

Franklin, in describing multigrading, states that it is a

> vertical administrative arrangement that... is a facilitating arrangement and plan [that] focuses on the needs of the learner rather than on grade level standards (Franklin, 1967:514).

Mycock (1970) identifies the following educational principles behind vertical grouping:

1. The need to respect the child as an individual in his own right.
2. The need for continuity and coherence in the educational life of the child.
3. The acceptance of the child as the agent in his own learning.
4. The provision for the fullest development of a balanced personality.
5. The need of children for a stable atmosphere where routines are defined and maintained.
6. The need for coherence of learning activities and experiences.
7. The avoidance of discontinuity, stress and disturbance in moving from class to class in successive years.
8. The programme follows and harmonizes with the child's development and anticipated future activities.

Ridgway and Lawton (1968) identify as characteristics of vertical grouping:

1. The provision of security in a group for an extended period of time.
2. The provision for continuous progress for the children.
3. The opportunity for "mutual aid" by which children help one another.
4. The allowances for variations in personal growth.
5. The provision of stable relationships between child and teacher over a longer period of time.

Advantages of Vertical Grouping

Similarly from the literature can be listed advantages claimed for a vertically grouped organization of classes.

1. There is the assertion that children's learning is increased by the mutual learning that is possible in a class of various age levels. It is claimed that young children have the opportunity to learn about classroom routines and storage of materials and equipment from older children. This eases the tension of the new entrant to a class. It is claimed also that language development is enhanced because of the opportunity to hear and talk with older children. In some instances, older children, or children who have developed a skill, will help (tutor) another child. This, it is claimed, helps both children in that it consolidates and reinforces that skill or technique for the tutor, and provides a presentation closer to the level of understanding of the learner. The opportunity for modelling is also cited as an advantage for this peer learning. Children have an opportunity to see the older children working and interacting and can assess and anticipate their own functioning at the higher level.

The interaction of children of different ages increases the concept formation of children which proceeds from spoken language and sharing experiences (Neill, 1975; Plowden, 1967; Wilcox, 1976; Murrow

and Murrow, 1971; Dale, 1972:49; Blackie, 1967:37; Frazier, 1972:29; Day and Hunt, 1975).

2. Many writers claim that children gain from the longer association with one teacher. The new entrant to a class joins an established class and is one of a few new pupils in the situation. There is usually a relative or friend who becomes a tie between the new child and the established group. The longer period of time with the other children and one teacher provides greater opportunity for the teacher to observe and become aware of the development, progress and needs of the individual children. This association is purported to provide the stability needed by children, and diminish the anxieties often accompanying the moving from class to class and teacher to teacher. It is claimed that this type of situation makes for greater and better growth in total development of the child. The lengthened teacher-child relationship provides greater emotional security for the children.

In dealing with individual differences, the teacher has a greater opportunity to identify areas of growth and weaknesses, and can plan and provide for these growths without the pressure of time for promotion. As a teacher "absorbs" the development of children, much of it cannot be measured and passed on to another teacher. It is, therefore, advantageous to have children for more than one year (Plowden, 1967:para 284; Murrow and Murrow, 1971; Blackie, 1967; Moorehouse, 1970; Ridgway and Lawton, 1968; Franklin, 1967:514).

3. From the creation of a more relaxed atmosphere, free from pressures and tensions of year end promotion and a common curriculum,

there is a higher level of motivation and aspiration to do quality work. Without the tension of grade levels to be met, the lower level of competition, the removal of marks and rewards, children function and work from the intrinsic motivation to learn. In Blackie's words, "children are supplying their own current" (1967:53). Children do not function from the motivation of passing tests or coming first. Because there is a situation of grouping and regrouping, there is no class structure that identifies children in ranking order. Children who are experiencing difficulty do not feel that they are at the bottom of the class (Franklin, 1967; Mycock, 1970; Blackie, 1967:53; Heyman, 1972:340; Murrow and Murrow, 1971).

4. Vertical grouping provides flexibility for class organization and grouping within the class. Because group learning and individual learning is expedited teachers are better able to form groups for special needs. Groups that are formed across age levels are disbanded on completion of a particular task or skill or activity. Children commonly join groups either on the basis of need, interest or achievement. The young child who is working with older children on skill development is able to relax by moving to a group of younger children for play or interest activity. The strain of keeping up for the brighter child is diminished because the opportunity for him to drop back is provided.

The range of ability and levels of attainment provide the opportunity for teachers to "slot" children to groups of similar developomental levels. Having the advantage of time to know the interests, skills and needs of children provides the teacher with a

better assessment of grouping for children (Mycock, 1970; Franklin, 1967; Ridgway and Lawton, 1968).

5. As a result of the relaxed atmosphere, children who experience interactions with a variety of groups come to realize their own worth and levels of abilities. It is claimed that vertical grouping promotes better attitudes toward work, and extends values and beliefs. There is also the assertion that the mixed ages provide opportunities to develop better understandings of the leadership role as well as the place for followers. Since the groups are forming and reforming, all children have the opportunity to be leader and follower. It is further claimed that young children more easily adapt to the role of leader and follower as a result of the modelling provided by other older children. Further, because the children work at their own level of development, and because they do not have the pressure and tension of reaching grade level standards, they have higher motivational and aspirational levels. These factors, it is claimed, result in higher self-esteem and better self-image which it has been suggested are factors for academic, social and mental development (Neill, 1975; Monolakes, 1972; Franklin, 1967; Murrow and Murrow, 1971; Mycock, 1970; Day and Hunt, 1975; Taylor, 1972:95).

6. Although vertical grouping is described as a diliberate organizational policy, and not administrative expediency, Richards (1974) points out that it does ease placement of new entrants to a school.

7. The Plowden Report (1967) and Ridgway and Lawton (1968) cite as an advantage of vertical grouping the increased co-operation between

parents and teachers. Evaluation of pupil progress is a fundamental activity in elementaary education, and without the traditional tests and reports close liaison between home and school is vital. The extended period that a teacher and child are together is purported to enhance the communication and co-operation between the two.

8. Neill (1975), Day and Hunt (1975) and Franklin (1967) refer to gains in the academic and social development of children. As has been found, the basic characteristic of open and informal education is a shift from subject-centered to child-centered education. As a result there is not the same stress on marks and promotion as in the traditional educational structure, and proponents of vertical grouping do not include academic achievement as a factor in discussing the informal education movement. In the review of research, however, it was found that academic achievement had been one of the variables documented.

Disadvantages

No school organization reaches the ideal, therefore it is normal that certain disadvantages are attributed to vertical grouping. Blackie states:

> they [children] are wasting far less time and doing much more work... so is the teacher... the new methods make very heavy demands on the patience, good humour, energy, knowledge and skill of the teacher, but it also... is much more rewarding (Blackie, 1967:41).

Neill (1975) and Featherstone (1971:17) concur with this assertion and suggest that the demands it makes on teachers were a result of the different emphases in the school.

Firlick (1976) and Taylor (1971) suggest that the older children, if spending disproportionate amounts of time helping younger children, might find it troublesome and be held back in their own growth. This could become a concern of parents if they are not fully aware and in support of the school organization.

The Plowden Report (1967) cautions that there is some danger that the younger children will be overshadowed by the older ones and the young children may imitate too closely the actions of the older ones and have insufficient experience with the use of materials and investigation.

Ridgway and Lawton (1968) cite as a disadvantage the possibility of a child being trapped with a poor teacher, or one with whom the child is not compatible. The flexibility contained in pupil classification could counteract this situation.

They further suggest that vertical grouping is also more expensive because of the need to provide the same materials for more classes than would be necessary in a traditional organization. It would appear, however, that the need for material would hold for any organization, but there should be a greater sharing of resources with vertical grouping. Smaller amounts in more classes would balance out over the classes in a school.

Summary

Vertical grouping, also known as family,multi-age and cross-grade grouping, is a vertical organization of classes that has been advocated and used for many centuries. In England it is used as

an intentional process of dealing with individual children. Theorists and practitioners herald the organization as having certain characteristics and advantages. Mycock (1970) claims that vertical grouping meets a number of needs of the child; viz., to be respected, to have continuity in his educational life, and to have a stable school atmosphere which provides for the fullest development of a balanced personality.

Other writers claim certain advantages of vertical grouping. Among these advantages are: the increased learning through mutual activities; greater emotional security through longer teacher-child relationships; greater flexibility in organization to meet individual needs; and greater self-esteem and better attitudes among children.

Disadvantages mentioned that result from vertical grouping are: increased teacher workload; the concern that younger children might be overwhelmed by their older peers; and the fear that older, more advanced children might lose in their own growth as a result of having helped younger, less able children.

The subproblems of the present study were generated from this section of the review of the literature.

Research

As has been shown, during the past two decades numerous books and articles have described the characteristics, principles, and theoretical advantages of vertical or multi-age grouping in the elementary school. There is, during this same time span, a paucity of

studies to measure the validity of these assertions by theorists and teachers.

Ford (1977), writing in The Elementary School Journal, identifies eight investigations of the topic. She dealt with the effects on children's affective development in vertically grouped school organizations. For the present study this investigator has identified an additional eight studies that have relevance to the topic, and has been unable to find any research project that has been replicated to support or refute extant findings.

In 1961 Earl Chace (1961) evaluated a "campus laboratory school" in which multi-grade units was the organization for pupil placement. Chace hypothesized that students in the multi-grade units would have greater gains in academic, personal and social development than children in single-grade classrooms. His further hypotheses were: that parents would prefer the multi-grade unit; and that teachers and administrators would prefer this organization to the single grade group.

The study was designed to compare 68 children from the laboratory school with control groups from public schools in Tennessee. Students of both groups were matched on basis of sex, age, intelligence quotients, grade placemnt, socio-economic characteristics of the schools as well as experience and training of the teachers. Chace used five instruments to secure data: the Lorge-Thorndyke Intelligence Test, the Stanford Achievement Tests, the California Test of Personality, a questionnaire for parents, and opinionnaire for teachers and administrators.

Analysis of the data indicated the following:

1. Multi-grade grouping offered slight positive but not significant gains in academic achievement.
2. Multi-grade grouping offered slight positive advantage in personality and social development, significant in five of the eight categories tested.
3. The parents of the experimental groups accepted the theory of multi-grade classes but did not care for its practice.
4. The success of multi-grade classes is curtailed by the extent that traditional graded activities are practiced.
5. Courses in teacher education give inadequate training in such methods.

Ford (1977) reviews a project conducted by Yerry and Henderson under the auspices of the New York State Department of Education. The hypothesis was that children in multi-age classes would be less anxious and more secure than children in traditional classrooms. The study used six hundred children in twenty two multi-age classes in one school compared with a control group of pupils from schools in the same district. Variables for matching schools were enrollment, socio-economic level, and teacher experience. The Ohio Social Acceptance Scale was used to measure social-emotional factors; while the Test Anxiety Scale for Children by Sarason measured school anxiety and feelings of defensiveness. The null hypothesis for this study was supported by the research data.

Mycock (1966), a former Principal of the Manchester College of Education (1971-76), conducted one of the earliest and most extensive

investigations into vertical grouping in English schools. Mycock compiled a list of claimed advantages for vertical grouping from four large urban school authorities in England. From these, eight factors were selected for investigation. Mycock hypothesized that there would be advantages for children in vertical grouping in comparison with children in horizontal grouping in:

1. Admission stress and speed of socialization.
2. Social adjustment and range of social interaction.
3. The effects of lengthened teacher-child relationship.
4. The effects of eliminating transition from class to class.
5. Anxiety about school work
6. Levels of aspiration.
7. Size of vocabulary.
8. School achievement in (i) reading (ii) mathematical skill and understanding (1966:7)

Four schools from a large urban school district were selected for study. The schools were paired using the variables of locality, size of classes, teaching methods, quality of building, quality of staffing, teacher attitudes to children and general school population. Two schools using vertical grouping were matched with two schools using the traditional horizontal pupil classification.

The problem called for an experimental design that would enable comparisons between groups of children in similar chronological ages of five to seven years. Selected were three classes in each school giving a total of 12 classes with 660 pupils.

Mycock used a variety of techniques to collect data for the study. To collect information on admission stress and speed of socialization of new entrants, a time sampling of observed behavior was used for five-minute periods at four intervals. To collect data for social adjustment and range of social interaction, the

investigator worked with a team of six trained helpers observing three children in five-minute time samples within a twenty-minute free play period in the school yard. This observation was repeated four times during the school year.

For the lengthened teacher-child relationship, the investigator used projective tests of drawing and sentence completion. The Bristol School Adjustment Guide was completed at the end of one school year and the beginning of the following school year to collect data on the effects of eliminating transition from class to class. In measuring anxiety about school work, the Test Anxiety Scale for Children was administered.

Mycock designed a task of peg-fitting to test levels of aspiration of children in the study.

In the area of academic achievement the Watts Holborn Vocabulary Test For Young Children was used to measure vocabulary growth of the seven-year-olds. This vocabulary test consists of 100 questions to be answered orally and individually. To measure reading achievement, Mycock employed the Neale Analysis of Reading Ability (1963). Achievement in mathematical skill and understanding was measured by the use of Piaget-type tests adapted from the experimental work of Piaget.

Mycock concluded that there were no significant differences between the experimental and control groups in social and anti-social play behavior, anxiety about school work, size of vocabulary and school achievement. Mycock found, however, a wider range of ability with more poor and good readers in the horizontal group, and suggests

that more intellectually able children profitted more from horizontal grouping. Mycock identifies categories in which the results indicate significant differences which appear to have limited duration. These categories included adjustment upon entry to school and transition from class to class. There is the suggestion that immature, nervous children adjusted more readily in the vertical organization.

Finally, Mycock found highly significant differences in favour of the children in the vertical organization in the range of social interaction among children, levels of aspiration, and emotional security resulting from the lengthened teacher-child relationship.

In 1970, Joseph Junnell (1970) conducted an investigation which has supplementary evidence for the present study. Junnell studied 150 junior high school students, 54 of whom were enrolled in multi-age classes in their elementary school. Junnell studied social adjustments, self-concept and acceptance, attitudes toward school, feeling of belonging and freedom from withdrawing and antisocial tendencies. Ford reports that Junnell used as instruments for his investigation, Bills Index of Adjustment and Values , Borgs U.S.U.School Inventory and the California Test of Personality. The results yielded significant differences in favour of the multi-age grouping in attitude toward school, while results of self-concept approached but did not reach the statistical level of significance. No significant differences were found for peer relations, social adjustment or self-direction. Capacity for leadership as estimated by peers was significantly greater in pupils from graded backgrounds.

A pilot programme in an Ohio school district involving a five

member team of teachers working in an open-space, multi-age school was investigated by Schroeder and Nott and reviewed by Ford (1977). In this study 140 children ranging in age from six through twelve years in grades one through five were randomly selected from the school population. The control group was selected on the basis of level in school, sex and level of performance. The Bonny-Myers Attitude Toward School Scale was used to measure attitude toward school. Results indicated a more positive attitude toward school held by children in the multi-age classes.

Day and Hunt (1975), writing in the April, 1975, issue of the Elementary School Journal, report a study they conducted to test the validity of the assumptions that multi-age grouping increases the interaction of teachers and pupils without regard to the age of children; that children will interact at random across age groups; that interaction will be dispersed evenly among age groups if chidren are permitted to mix freely; and that interaction occurs in all learning centers as long as children are free to mix together. The subjects were children in four early childhood centers in North Carolina. In each setting there were staffs of a master teacher, interns and aides. To quantify interaction, a single observer drew all the data in four settings during a three-week period. The interactions of the various ages was tested against the expected interactions.

The results of this limited study suggest that pupil-pupil interaction is not random, and that the interactions among children were significant between children of the same age. The data revealed

unexpectedly low interaction between the oldest and youngest children in the groups.

James P. Papay and associates (1975) examined the relations between trait- and state-anxiety and performance on mathematical tests in multi-age classes and traditional learning environments. The experimental group pursued an individualized multi-age programme while the control group followed the traditional programme. The subjects were drawn by random selection of first and second grade pupils in fifteen elementary schools in a large metropolitan school district in the United States. The schools represented the full spectrum of socio-economic deprivation indices. Equal numbers of children were assigned to traditional and individualized multi-age programmes with a total of 267 children. The investigators define State Anxiety (A-State) as an emotional state characterized by feelings of tension and apprehension which fluctuates over time as a funcion of situational stress. Trait anxiety (A-Trait) was defined as anxiety proneness; that is, individual differences in the disposition to psychological stress with elevations in A-State.

To draw data for the investigation, the children were evaluated by diagnostic pretests designed to assess specified objectives. Criterion referenced tests were used to assess levels of achievement and the State-Trait Anxiety Inventory for Children was used to measure anxiety. Each child was measured individually during the last two months of the academic year. The prediction that the individualized multi-age programme would facilitate performance on criterion-referenced tests was not substantiated. The results were

similar for both grade levels.

Other findings may be interpreted as providing evidence that individualized multi-age instruction reduced state and trait anxiety, and that anxiety-reducing effects of participation in such instruction were cumulative over a period of two years.

Schrankler (1976) investigated the effects of multi-age grouping on children's self-concepts and their attitudes toward school, as well as academic achievement in reading and mathematics. The study was conducted in one school in St. Paul, Minnesota. One experimenntal group included about 225 children with thirty children of each age of five to twelve years. This was identified as Complete Multi-age. A second group, called Restricted Multi-age consisted of children in three instructional areas in which the age span was restricted to two or three years. About 775 children comprised this group.

The third group, the control, was made up of all children in self-contained classrooms in a traditionally graded school. All children had the same curriculum, school staffs with similar teaching experience and were from comparable socio-economic areas.

All children were pretested in the fall of 1973 and post-tested in the spring of 1974 with the following instruments: Instructional Objectives Exchange; Measures of Self-Concept; Measures of Attitudes Toward School; the Iowa Tests of Basic Skills; and the Metropolitan Achievement Tests.

In this study the data showed that children in multi-age groups scored significantly higher on six of the seven tests of

self-concept. In combined self-concept and attitude toward school, the complete multi-age group was most favoured nine times; the restricted multi-age group, six times; and unit-age group, once. In studying attendance records, the researcher found that multi-age groups had slightly higher mean yearly attendance, but was significant for the five-year-olds only.

No significant advantage for any group was found in vocabulary, reading and arithmetic, but the nine-, ten-, and eleven-year-olds in the restricted multi-age group scored consistently higher in arithmetic.

Opinionnaires distributed to parents and teachers yielded positive reactions to the multi-age groupings in the school.

Way (1981) studied the effects of multi-age grouping on achievement and self-concept on children in single-age and multi-age classrooms in grades one through five. Reading and mathematics achievement were measured by the Stanford Achievement Tests while self-concept was measured with the Piers-Harris Children's Self-Concept Scale.

Way reported no significant differences between the children of the two school organizations on any of the achievement measures. She reported significantly higher mean scores for the multi-age classrooms on one of the six factors in the self-concept scale (happiness and satisfaction). Children in the multi-age classrooms had slightly but consistently higher mean scores on the other five factors which did not reach levels of significance.

Moresh (1972) analyzed the effects of vertical grouping on

reading achievement and attitudes in elementary schools. The study involved 215 students in a new school located in a small rural community in the United States. The experimental and control groups were similar in number. Intelligence quotients were obtained by using the California Short Form Test of Mental Maturity, while Attitudes Toward Reading Inventory provided information on children's attitudes to reading. Achievement in reading was measured with the California Reading Test.

By using pre-post test design, analysis revealed support for the null hypothesis of the research. There were no differences in attitudes to reading and feeling to reading classes, quality of vocabulary development or of comprehension growth between multi-age and single-age grouping at the intermediate level of the elementary schools used in the sample.

Ahlbrand and Reynolds (1972) studied three kinds of peer status; scholarship, leadership and popularity of 160 pupils in an elementary school piloting new curriculums and patterns of organization. The pupils were in grades four, five and six, and placed in classes including a range of two grades according to academic readiness. Pupils were asked to make four selections in each of six categories: good and poor scholars; good and poor leaders; and popular and unpopular classmates. The purpose of the study was to examine the effect of age-group membership on the status of pupils held by their classmates. The researchers tabulated the selections according to the nominations of older, younger and same age pupils in six classes that contained children placed on basis of academic

readiness as judged by teachers and standardized tests.

Analysis was conducted to determine whether the nominations differed significantly from nominations expected by chance. For all three of the positive sociometric dimensions there were proportionately more nominations received by the older group than by the younger pupils. The investigators conclude that combining pupils of two grade levels in the same classroom had an effect on peer status nominations in scholarship, leadership and popularity and that the older children are most often nominated in these areas.

Firlik (1974) conducted a study to secure data concerning relationship between age-grouping and performance on Piagetian tasks. Firlik conducted pre-posttest procedure with 54 five-, six-, and seven-year-olds in both England and the United States. All subjects were tested on the Goldschmid and Bentler Conservation Kit. Equal numbers of children were randomly assigned to either mixed-age, same age or independent treatment. All subjects were allowed to manipulate conservation related materials as treatment for one week. Analysis of data revealed a significant relationship between mixed-age grouping and performance on conservation tasks. Mixed-age grouped children scored significantly better than same-age or independent subjects. No significant relationship was found between performance or criterion measured or country of residence.

Firlik concludes that the outcomes of his study provide evidence of the value of practices that involve children of different ages working together on some kinds of problems.

In light of the relationship that exists between British

Informal education, (characterized by the organization of vertical grouping) and the American open education movement, (characterized by a similar philosophy) the work of Pavan (1973) is relevant to the present survey. Pavan reviewed research on graded and nongraded schools published between 1968 and 1971.

Pavan relates that comparisons of graded and nongraded schools continue to favour nongraded schools as determined by the use of standardized tests of achievement. Further, that in the studies which included a mental health component, results favoured nongraded schools. Other tendencies revealed through research were that fewer children are retained in nongrading; that nongraded environments are beneficial for blacks, boys and under-achievers; and that children in open-space schools work more frequently individually or in small groups.

Franklin cites a three year study conducted in 1955 in Torrance, California, in which:

> data revealed multi-graded groups exceeded single-graded groups in reading, arithmetic and language. In 46 out of 48 statistical comparisons, multi-graded pupils also showed greater gains in personal adjustment, social adjustment, social maturity and behavior characteristics. (Franklin, 1967:524)

She further stated that academic achievement was influenced positively in multi-graded classes with older children making the greatest gains.

Summary-Research

Investigations carried out on "vertical" or "multi-age" grouping yield slightly positive results in favour of this type of

pupil classification over the traditional single age/grade class organization.

Slight, but not significant, gains in academic achievement have been reported by Chace (1961), Papay (1975), and Pavan (1973) and Franklin (1967). No differences in academic achievement as represented by tests in reading comprehension, size of vocabulary and mathematics were found by Mycock (1966), Schrankler (1976), Moresh (1972) and Way (1981). Firlick (1974), however, reported greater gains in mathematical understanding.

In the area of scocio-emotional development results reported by researchers are also in favour of vertically grouped classes. Slight positive significant gains in personality and social development have been reported by Chace (1961), while Junell (1970) reported no significant difference. Mycock (1966) found no difference in social and anti-social behaviour between the vertical and horizontal grouping. Papay (1975) reported that state and trait anxiety were reduced: but Yerry and Henderson (Ford, 1977) and Mycock (1966) found no difference in this construct. Mycock (1966) reported that levels of aspiration in goal setting as well as emotional security were greater in vertically grouped than in horizontally grouped classes.

Significant positive differences in favour of vertical grouping in attitudes toward school have been reported by Junell (1970), Schroeder and Nott (Ford, 1977) and Schrankler (1976), while Moresh (1972) reported no difference in attitude to reading. Junell (1970), Schrankler (1976) and Way (1981) reported the that level of

self-concept approached but did not reach significant level of difference. Mycock (1966) reported fewer problems in adjustment upon entry to school and transition from class to class. She also reported a wider range of social interaction in vertically grouped classes. Ahlbrand and Reynolds (1972) reported greater capacity for leadership in vertically grouped classes. Schrankler (1976) found slightly higher yearly attendance among children in vertically grouped classes over children in horizontally grouped classes.

This section of the review of the literature influenced the design of the study and the interpretation of the results in a Canadian context.

Educational Evaluation

In an effort to select a design, procedures and instrumentation to evaluate vertical grouping, it was considered necessary to review the literature on educational evaluation.

For this reason, the investigator turned to the literature for direction in pursuing several aspects of the study.

Definition and Purpose

Educational evaluation is a relatively recent activity in the field of education. W. James Popham (1975) suggests that its increase was a response by educators to criticisms of schools and educational systems after the 1950's. He attributes the impetus of involvement in evaluation in the 1960's and 1970's as a reaction to the move to accountability. Popham (1975) states that educational evaluation is

"not yet functioning as a seasoned veteran".

Because educational evaluation is a recent component of education, there is, as yet, a limited body of theory from which educators and researchers can draw to develop systematic studies in the field of education. As indicated by Grotelueschen and Gooler (1977) it appears that evaluation has a different meaning for different people.

Popham (1977) defines educational evaluation as "a formal assessment of the worth of educational phenomena". By definition Popham distinguishes between educational research and educational evaluation. Basically, research has as its focus the drawing of conclusions through high generalizability with truth as its value emphasis. Evaluation on the other hand, focuses on the provision of information for decision making with low generalizability, and with worth as a value emphasis. While research is concerned with the search for scientific truth to better understand a phenomenon, evaluation emphasizes the better understanding of a phenomenon to guide someone's decision to make it better. When the phenomenon is in the realm of education, the activity falls in the field of educational research or evaluation.

From this discussion, one can conclude that general practice of educational research and evaluation are similar to that point when conclusions are drawn. The researcher draws conclusions; while the evaluator transmits information to a decision maker. This concern with providing information is put forward by Scriven (1967), Stake (1967), Stufflebeam (1971) and others. To them the needs of the

sponsor of the evaluation will determine to a considerable degree the design of the study.

Types of Designs

The literature reveals two general designs for educational evaluation: the classical model and the "new wave model".

Classical Model. The classical model of educational evaluation espoused by Tyler (1942) followed the linear-design model. Parlett writing in Butcher and Rudd (1972) refers to this as the "agricultural botany paradigm". This model starts with stated hypotheses. Important to this model is the definition of objectives in behavioral terms which might then be measured:

This traditional design of evaluation has enjoyed a long use and was enhanced by the publication of Campbell and Stanley's (1963) treatise on research designs. The processes of the classical design have built in controls which create inflexibility of procedures for the researcher.

There have been reactions to the classical model of research beginning with Scriven (1967) who suggested that in judging the worth of a programme, the goals themselves should be evaluated; further, he distinguished between "formative" evaluation designed to improve instructional sequence and "summative" evaluation which assesses the merits of completed sequences of instruction. Scriven's work on summative and formative evaluation led naturally to the evolution of the second model of evaluation in education.

New Wave Model. New Wave evaluation is a term used by Stenhouse (1975) in discussing recent developments in educational evaluation in England. Stenhouse suggests that because there is great involvement in England in curriculum development, evaluation of these programmes and projects are formative and concerned with the process of curriculum development.

New wave evaluation has evolved from the fact that "the educational establishment is in a constant state of change or flux" (Stufflebeam, 1971: 37). Kelly (1977) points out that curriculum is a dynamic and continuously evolving entity of which evaluation is a part of a continuous programme. The basic characteristic of the "new wave" evaluation is that it is not based on pre-specified objectives. As such, it is in contrast to the classical model of educational evaluation. Those practising the new wave evaluation are themselves developing designs and models as they proceed. MacDonald, cited by Stenhouse (1975) and Kelly (1977), indicated that in an approach not based on pre-specified objectives it is not possible to define in advance what data will be significant, so that all data have to be accepted. This "wholistic approach" characterizes Scriven's formative evaluation.

Stake (1967) in developing his "Countenance Model" of evaluation formulated an approach that included description and judgement. Stake identifies "intents" of programme and proceeds to judge the extent to which they are reached in the process. This element of subjectivity in value decisions is contrary to the rigid objectivity inherent in the classical model.

Objectivity and Subjectivity in Evaluation

Description of processes and judgements of merit are becoming acceptable practice in educational evaluation. Kelly (1977) points out that the pracitioner and his judgements are crucially important in making decisions in curriculum and programmes. The reliance on judgements introduces the element of subjectivity in data collected in evaluative studies. As has been mentioned, the purported strength of the classical model was in its objectivity of information. This conflict is dealt with by Stenhouse in discussing the work of MacDonald:

> evaluation is the process of concerning, obtaining and communicating information for the guidance of educational decision making with regard to a specific programme
>
> It is not implied that this concept of evaluation in the activities referred within it, are value free. This cannot be. But what is implied is that the evaluation aspires to be a reliable and credible source, accessible to the judgement of all those who seek information about the programme (Stenhouse, 1975:112).

Stenhouse (1975) further suggests that a more effective methodology would be much more descriptive and inductive. It would be concerned with describing the unfolding form of the experimental intervention, the reactions of individuals subjected to its impact, and the consequences, so far as they can be learned by interview and observation. In short, in order to evaluate one must understand.

This problem of describing, explaining and understanding is developed in the work of Parlett and Hamilton in their treatise Evaluation as Illumination (1972). These evaluators describe their work as belonging to the "anthropological research paradigm" in contrast to the agricultural botany paradigm. They have abandoned

measurement of educational products for intensive study of the programme as a whole and its effects on those involved in the programme - the students, the instructors, and the administrators. Parlett and Hamilton examine an innovation not in isolation but in the school context or "learning milieu". This examination is done through observation, interviews, questionnaires, and analysis of relevant documents, in an attempt to "illuminate" problems, issues and significant programme features.

Illuminative evaluation concerns itself with "description and interpretation rather than measurement and prediction" (Parlett and Hamilton, 1972:8-9). This research strategy has three stages: "investigators observe, inquire further, and then seek to explain" (Parlett and Hamilton, 1972:16). It concentrates on the information gathering rather than decision making component of evaluation. As was pointed out by Stufflebeam (1971), however, the evaluator's responsibility is to provide information on alternatives so that decisions can be made with greater confidence. In illuminative evaluation, the evaluator strives to develop a report that "aims to sharpen discussion, disentangle complexities, isolate the significant from the trivial and raise the level of sophistication of debate" (Parlett and Hamilton, 1972:30).

Again in their report, the writers anticipated the concern with the subjectivity of their data. As did MacDonald, Parlett and Hamilton dismiss this concern by stating that it is based on the :

> erroneous assumption: that forms of research exist which are immune to prejudice, experimentor bias and human

> error. This is not so, any research study requires skilled human judgement and is thus vulnerable (Parlett and Hamilton, 1972:24).

MacNeil supports this stance when he says:

> Evaluators should not allow ideas about what must happen in a perfect evaluation to discourage them; they should remember that there have been no perfect evaluations (McNeill, 1977:138).

Kelly deals with this point as well:

> It may be better to think not so much in terms of achieving objectivity in some absolute sense of avoiding the most extreme forms of subjectivity that derive from views that are totally idiosyncratic or blindly predjudiced... objectivity comes from recognizing the need to give reasons for our judgements and thus open them up to rational discussion and debate (Kelly, 1977:122).

This problem of subjectivity in evaluation has concerned a number of researchers, and is the centre of another strategy in information sources-multiple interviews, or "triangulation", in which accounts are obtained not only from the teacher but also from participants and an independent observer. The work done for the Schools Council and the Ford Foundation by Elliott (see e.g. Stenhouse, 1975; Kelly, 1977) exemplifies this approach to data collection.

Stenhouse (1975) and Kelly (1977) have intimated that as the activities in curriculum development intensify, the need for new approaches to evaluation methodology will also increase. From the work of the "new wave" evaluators, in conjunction with the classical model of evaluation, one would conclude that the definition and methodology of evaluation is, as Popham suggested, in the developmental stage. Given the vagaries of educational practices it is likely that future activities in evaluation will be as diverse and

creative as are the innovations we find in the educational climate. With the acceptance of the knowledge that learning is a highly complex thing, it follows that a range of sophisticated techniques are required properly to measure it. Shapiro states that:

> those who evaluate educational programs must begin to construct research strategies and measures that are developmentally relevant, that take account of individual variations, and are appropriate to differing kinds of educational situations (Shapiro, 1978:391).

A symposium of international evaluators was convened in Cambridge, England in 1972. They discussed aims and procedures of evaluating practices and agreed:

> I. That past efforts to evaluate these practices have on the whole, not adequately served the needs of those who require evidence of the effects of such policies because of:
> a. an under-attention to educational processes including those of the learning milieu,
> b. an over-attention to psychometrically measurable changes in student behaviour... and
> c. the existence of an educational research climate that rewards accuracy of measurement and generality of theory but overlooks both mismatch between school problems and research issues.
>
> II. They also agreed that future efforts to evaluate these practices be designed so as to be:
> a. responsible to the needs and perspectives of different audiences;
> b. illuminative of the complex organizational teaching and learning process at issue;
> c. relevant to public and professional decisions forthcoming and
> d. reported in language which is accessible to their audiences.
>
> III. More specifically they recommended that increasingly,
> a. observational data, carefully validated, be used (sometimes in substitute for data from questioning and testing),
> b. the evaluation be designed so as to be flexible enough to allow for response to unanticipated events...
> c. the value positions of the evaluator whether highlighted or constrained by the design, be made evident to

to the sponsors of the evaluation (Stenhouse, 1975:139).

While these evaluators are advocating a variety of strategies for data collection, McNeil (1977) suggests that creative indicators can be devised if persons will look beyond the formal test. He stated:

> a useful scheme for generating indicators is to reflect on 1) learners' products - such as compositions, painting, constructions; 2) learners' self reports on preferences and interests; and how learners solve problems, conduct discussions and participate in physical games and dances. With these methods teachers or evaluators should use an accompanying checklist stipulating behavior to be exhibited by the pupil and the qualities to be found in the pupils' product (McNeil, 1977:149).

The designs and strategies of the "new wave" evaluators and the directions for the future as agreed upon at an international symposium are reflected in the definition of evaluation formulated by Stufflebeam. He suggests that the tasks of evaluation are to:

> 1) provide continuous "readings" along the congruence and contingency dimensions, (2) identify options, (3) explicate values and criteria and (4) provide information that weights the options in relationship to criteria (Stufflebeam, 1971:40).

Fullen (1979) suggests means by which these objectives may be investigated.

> Multiple methods are used to assess... outcomes with more emphasis placed on observation, task related problem-solving exercises and direct diagnosis of behaviour than on paper and pencil testing of outcomes (Fullen, 1979:22).

The methods of evaluation espoused by Fullen are more fully described by Hamilton in an article "The Social Side of Schooling: Ecological Studies of Classrooms and Schools" (Hamilton, 1983). His basic tenet is that former (classical) methods of educational

evaluation and research do not reveal the operations of school social systems in sufficient detail to provide a clear understanding of how schools work and what their implications are both for the academic learning of children and their socialization.

Hamilton identifies four criteria for ecological research:

> 1. It gives attention to the interaction between persons and their environment.
> 2. It treats teaching and learning as continuously interactive processes rather than as a cause and an effect.
> 3. It considers person-environment interactions not only within the immediate setting (the classroom and school), but the influences of other contexts on those interactions, particularly the family, community, culture and socieconomic system.
> 4. It treats the attitudes and perceptions of the actors - teachers, students, administrators, parents and others - as important data about schools and classrooms (Hamilton, 1983:314-315).

Hamilton cites Branfenbrenner as proposing that "the function of social science with respect to social policy is not to answer questions but to question answers!" (Hamilton, 1983, 315). This stance is similar to that of Parlett and Hamilton (1972).

Hamilton points out that:

> Ecological studies represent more than a distinctive approach to research on teaching and learning; they are based on an emerging paradigm (Doyle, 1978) that challenges conventional ways of thinking about these phenomena and conventional ways of studying them (Hamilton, 1983:315).

Summary-Evaluation

Different writers attach different meanings to educational evaluation. Historically the design of educational evaluation and research has followed the classical or agricultural-botany model. Evaluators have identified goals and objectives, attempted to isolate

variables and proceeded to test hypotheses on pre-specified objectives. In the last decade evaluators have attempted to investigate educational phenomena by description, explanation and judgement. The main aim has shifted from search for new knowledge to providing information for better decisions: from product to process evaluation. Proponents of the "new wave" evaluation have become involved in formative evaluations that call for designs of investigation encompassing non pre-specified objectives. The process influences the evaluation's direction. In these recent designs a variety of techniques for the collection of data has been introduced.

In the present study, a combination of the two approaches were used as a result of the review of the literature.

Literature Relevant to Instrumentation

A variety of techniques for collecting information were used in the present investigation. In some cases the instruments are commercially distributed standardized tests, while in other sections of the study observations of children's behaviour and samples of children's work were used. As well, instruments and techniques used by other researchers were employed to compile a wide range of information for analysis and interpretation.

Academic Achievement

1. Canadian Tests of Basic Skills (CTBS) is a Canadian version of the Iowa Test of Basic Skills. The standardizing programme was conducted by random sample of schools stratified on the basis of

province, Roman Catholic vs non Roman Catholic, elementary schools vs elementary schools with high school grades and size of school as indicated by the number of teachers. The school units were selected from the ten provinces on the basis of 1.25% sample of schools (King, 1975).

The publishers report split-half reliability coefficients ranging from .73 to .98 in the subtests of the battery. For the purposes of this study the subtests used have split-half reliability ranging form .81 to .92. L.B. Birch writing in Buros stated: "It is thus reassuring to be able to use a test like the Canadian Test of Basic Skills for it has such a long line of respected antecedents that its status need never be doubted" (Buros, 1972:16).

The following subtests with reliability coefficients of the Battery of CTBS were used for the study: Test V, vocabulary, .87; Test R, reading, .92; Test L-4, spelling, .91; Test M-1 math concepts, .87; and Test M-2, math problems, .81 (King, 1975).

2. The technique and tasks in mathematical understanding used by Mycock (1966) were replicated in the present study. Mycock utilized experiments described by Hunt in his comprehensive survey of Piaget's work. Since Piaget stressed that practical and varied experiences were essential to the acquisition and verification of mathematical concepts, it was felt that the scope given in the schools under investigation might therefore be expected to make an important contribution to this process. For the purpose of this study, the work of Mycock was judged to be appropriate.

3. Written expressive language was appraised by means of

adopting techniques used by researchers in the study of the development of language by children. The work of Wilkinson et al (1980) was used to develop methodology for the conduct of this specific section of this study.

Socio-emotional Development

1. The Test Anxiety Scale for Children (TASC) was used to measure anxiety among the children in the investigation. TASC, developed by S.B.Sarason and associates (1960) is designed to measure anxiety in school children in grades 1 through 9. The thirty questions in the scale, are given orally and the child responds by circling "yes" or "no" on his answer sheet. The scale provides a general anxiety score and a test anxiety score.

The test has satisfactory reliability. (Split-half coefficient of reliability is .81, while the test-retest coefficient of reliability ranges from .69 to .81.) Mycock (1966) reviewed studies that were conducted using the Sarason scale and reported that results of studies conducted on English children suggest that educational methods and school atmosphere influenced test anxiety as measured by this instrument. Borich (1977) reported that studies conducted by Sarason and associates on English and American children confirmed the expectation that English children would score significantly higher than American children on the TASC, but were similar in general anxiety.

2. The Self-esteem Inventory , designed by Stanley Coopersmith (1967), is a self-report questionnaire for children aged 8

to 10 years, that provides scores for five dimensions of self-esteem: general self, social self/peers, home/parents, school/academic and a lie scale. The 58 items elicit responses of "like me" or "unlike me".

Borich (1977) reports Coopersmith's investigation resulting in test/retest coefficients of reliability ranging from .70 to .88 over time lapses. Fasano (1977:74) reports test-retest reliability coefficient of .792 for grade one students. Borich reviewed a number of studies that revealed an acceptable level of validity with other scales that measure dimensions of personality of children.

The scale was judged to be an acceptable instrument to provide data for this investigation.

3. Social Maturity of Children was determined as the degree of socialization of children in the study. The work of Doll (1947), Havighurst (1969) and Hamilton (1983) was useful in developing an orientation to determine the degree of socialization of children. The observation of children (Stenhouse, 1975; Fullan, 1979; Hamilton, 1983) by direct classroom observtion and video taped records was used for the collection of data for this research. The method and intrumentation have not as yet been validated, but on the strength of current literature, the investigator accepted the method and procedure as a viable research approach.

4. Effects of lengthened teacher-child relationahips were studied by Mycock (1966) who constructed a projective test of sentence completion to provide indirect expression of feeling about mother and teacher. In her study, Mycock took "maternal warmth" as a frame of reference for the young child's concept of his teacher. The

questionnaire was designed to give insight into teacher-child relationship by quantifying the subjective responses to the questionnaire. Mycock followed the work of Bene (1957) who devised a two-symbol coding method for scoring a variety of attitudes registered in a sentence-completion test.

The second projective technique used in the section of teacher-child relationship was a drawing test. Again Mycock's (1966) methods were used.

5. Levels of aspiration were studied also by Mycock (1966). Her work was replicated in this section of the study. Mycock recognizes the work of Lewis, Dembo, Festinger and Sears as influencing the design of the task to measure level of aspiration among children. The tasks selected were based on the work of Wener (1953) who used similar tests with children suffering from a motor handicap.

6. Classroom climate and the sociometrics of classes were studied after the work of Anderson (1971), Fasano (1977) and Clark (1970). The instrument My class Inventory (MCI) was developed by Gary J. Anderson and Herbert J. Walberg in 1968. It is a modified version of another instrument, The Learning Environment Inventory (LEI), and is adapted for use with elementary school children. Individual scale reliabilities reported by Anderson (1971) range from .54 to .77. Both instruments, the LEI and MCI, are being used and validated. For the purpose of determining classroom climate, the My Class Inventory was deemed to be an acceptable instrument.

To study the sociometrics of the respective classes the three

question technique (c.f. Havighurst, 1969:466) was adapted after Fasano (1977). In this instance the general method is an adaptation of that used by Moreno (1934). The method of obtaining children's preference for work and play has been used continuously since first introduced and was deemed to be a valid and reliable method for this research.

7. Cross-age interactions were studied by direct observation of children's activities. Popham (1975) suggests that one effective way of documenting the behaviour of children to be observed is to conduct "time-sampling" observations. He indicates that such a technique usually results in carefully recorded data. This technique was also advocated by the evaluators at the international conference held in Cambridge (c.f.p.48).

8. Parents' reaction to vertical grouping was determined by an adapted version of Parent Opinion Inventory published by National Study of School Evaluation (1981). The original instrument was designed to accomplish three goals:

> 1. To assess parents' attitudes in reference to their school and its programs.
>
> 2. To provide parents an opportunity to make specific recommendations for improvement.
>
> 3. To provide valuable data for school personnel in the decision-making process relative to program development, policy formulation, administrative organization, faculty developoment, and community relations (Parent Opinion Inventory, 1981:2).

Coefficient alpha reliability of internal consistency for part A is listed as .91. No test-retest reliability coefficients have been determined.

Specific questions from the Parent Opinion Inventory that were applicable to the school system of the study and of the nature that would generate appropriate information were used. Because each school situation is different and because the present study was investigating a specific school organization, the investigator believed that the questionnaire that evolved would be valid for purposes of this study.

Summary-Instrumentation

Methods for collecting data for the study were adopted from a wide variety of techniques. These methods included commercially available instruments, pencil and paper tests, samples of children's work, questionnaires, classroom observation and time sampling techniques as well as video tape records.

CHAPTER 3

DESIGN AND PROCEDURES

Introduction

The present research investigates whether vertically grouped classes have advantages for the development of children not found in horizontally grouped classes which are common in elementary schools of Nova Scotia. The study was conducted from 1980-1984 in selected classes functioning under the jurisdiction of the King's County District School Board in Nova Scotia. The schools were similar in characteristics and qualities but were organized in two different ways, viz. using either vertical or horizontal pupil placement in the school organization.

In order that the design and procedures could accommodate the diversity of the problems of the study, the literature on evaluation in education was reviewed. The literature revealed two major types of evaluation, classical and new wave. The present study used a combination of these major types. In circumstances where quantitative data could be collected the classical type of evaluation was deemed appropriate. To these were added data obtained in the "new wave" method which was used also in sub-problems for which there were no known standardized instruments for data collection.

As a result, a variety of paper and pencil tests, samples of children's work, school records, questionnaires, diaries, video recorded classroom observations and time samplings were used.

Sample

Two elementary schools were selected within a school system in Nova Scotia. These schools used either vertical or horizontal grouping and were willing to participate in the investigation.

School A had a primary division of five classes, three of which were organized with vertical grouping of first, second and third year students. All other classes were organized in the traditional self-contained horizontal grouping by age and grade.

School B was selected for inclusion in the study in response to Ford's criticism that the "traditional design" used to study vertical grouping has compared it with a control group of horizontally grouped classes. She suggests that:

> it would seem valuable to include a third group in future experimental designs - self-contained classes that are grouped on the basis of age but are conducted in an open atmosphere and use individualized instruction (Ford 1977:159).

With this additional group she suggests that the variable of "wide age span" might be evaluated independently of individualized instruction. School B included classes of horizontal grouping as well as one class of third year students that met the criteria recommended by Ford. It functioned in a similar way to the vertically grouped classes but contained children of a single age. To respond to Ford's suggestion, the additional group has been included in this study.

The schools selected for the study are located in the same geographical area of the school district and serve a population of similar socio-economic status. School A is situated in a rural village of approximately one thousand people, while School B is

situated in a small rural town of approximately five thousand people. The two schools are approximately six miles apart in adjacent school sections.

Classes Used in the Investigation.

The experimental group refers to the vertically grouped classes, in School A. Table 1 contains the enrolment of these classes; a total of 72 children.

Table 1

Class Make-up of Experimental Group N = 72

Children	First Year		Second Year		Third Year		Total
Classes	Boys	Girls	Boys	Girls	Boys	Girls	
1	4	3	4	7	4	3	25
2	3	2	4	5	4	6	24
3	3	3	4	4	5	4	23
Total	10	8	12	16	13	13	72

These students remained together with the same teacher for the first two years of school and for their third year were placed in one of the other vertically grouped classes. They were grouped for instruction and activities by level of development and needs identified by teachers' asssessment. For informal activities, project work and free activities, they selected their own groups e.g. free reading, cooking activities and lunch periods.

The experimental-control group refers to the self-contained, Grade 2, class in School B in which children were placed by single age and in which an informal approach was used by the teacher. This class functioned in groups according to achievement levels. The teacher of

the experimental-control group had previously taught a vertically grouped class and continued to use teaching strategies similar to those in the experimental group. The class contained 13 boys and seven girls for a total of 20 children.

The control group refers to two self-contained classes in School B in which children were placed by modal-age for the grade. They were in their third year of school designated as Grade 2. The teachers of these classes used conventional teaching strategies. One class contained 11 boys and eight girls for a total of 19 children; the other; 11 boys and nine girls for a total of 20. The control group had a total of 39 children.

Procedures

The investigation was conducted to study three general areas of child development: academic achievement, socio-emotional development, and learning milieu. To determine academic achievement, a combination of standardized and informal tests were used. In the area of socio-emotional development commercially distributed instruments as well as non standardized tests were used. To collect information in the area of learning milieu methods and tests were devised to provide qualitative information.

The majority of the data were collected in 1980, with supportive data collected later as required. The critical level of confidence selected for statistical analysis was five percent (α .05).

Academic Achievement

Subproblem One: Academic Achievement. The purpose of this enquiry was to investigate the assertion that there is greater academic achievement attained by children in vertically grouped classes than by those in horizontally grouped classes. The specific areas of academic achievement that were investigated are: (a) vocabulary, reading comprehension, spelling, mathematical concepts, mathematical problem solving; (b) stages of concept development in mathematical activities; and (c) written expressive language. These three areas were studied separately.

1. Instrumentation: Language Arts and Mathematics Skills. The instrument used to test vocabulary (V), reading comprehension (R), spelling (L), mathematical concepts (M-1), and mathematical problem solving (M-2) was the Canadian Tests of Basic Skills, Primary Battery, Level 8, Form 3M.

Sample. Third year children were given the tests. N=77

Method. The classroom teachers administered sub-tests V, R, L, M-1 and M-2 to their respective classes following the standardized instructions of the Teachers' Manual.

Preparation of Data. Raw scores attained by the children were tabulated for the respective groups. Mean scores and standard deviations were calculated; and comparisons by t test were made

between the experimental and experimental-control groups, experimental and control groups, and experimental-control and control groups.

2. Instrumentation: Concept Development Stages in Math. Piaget-type tasks were administered individually to children in the sample.

Sample. Included in this research were third year children together with a ten percent random sample of first and second year children from the experimental group and School B. N = 105

Method. (a) Conservation of discontinuous quantities. Children were presented with dried beans and a variety of containers. The investigator asked questions to bring out understanding of quantity. The oral responses of children were recorded.

(b) Concept of additive composition of numbers and relation of part to whole. Children were presented with "Smarties" (colored, coated chocolates), in two sets, differently arranged. The investigator asked questions to bring out understanding of correspondence and composition. The investigator field tested these procedures in classrooms not included in the study. The oral responses of the children were recorded. Full details of the tasks and questions appear in the Appendix B, p. 184 ff.

Preparation of Data. Each task discriminated between three levels of mathematical understanding (after Piaget) and individual

scores were based on these stages of:

1. complete absence of understanding
2. partial understanding but gradual loss of conviction
3. complete and confident understanding.

The attainments were calculated and frequency distributions were tabulated. Chi-square comparisons were made between the experimental and experimental-control groups, experimental and control groups, and the experimental-control and control groups.

3. Instrumentation: Written Expressive Language. A free writing activity was required from the children.

Sample. The task was administered to third year children in the research groups. N = 78.

Method. The test was a motivated free writing activity administered in the classroom setting. A picture (a copy appears in the Appendix B, p. 188) was presented to the children who were instructed by the investigator to write a story, similar to ones that are included in their readers or story books.

The picture selected contained aspects to which the children could relate, and which would evoke an emotional response. The picture also depicted elements that would suggest causal relationships.

The activity was designed after the work of Wilkinson et al (1980) and Tough (1977) and field tested in non-study classrooms to check the administration of the test.

Complete freedom was emphasized in the execution of the task

with respect to form and length. Incidental assistance was given by the investigator to queries of spelling. No time limit was given, and children were free to inspect or study the picture which was on display in their presence.

Preparation of Data. Ratings of the children's written passages were made by the investigator and two other judges selected for their professional knowledge of young children. A training session was held with the judges, using the writing of the field testing of the task. The rating results of the research sample were calculated for inter-rater reliability. The three judge inter-rater reliability was found to be 0.51. This was considered too low to provide valid statistical data and the ratings of the judge assessments exhibiting the greatest divergence was dropped. The two judge inter-rater reliability was 0.72. Instructions given to the judges are found in the Appendix B, p.186.

The rating scale for the written expressive language provided levels of development described as:

1. describing: recording what is in the picture close to speech intention
2. interpreting: explaining; assessing; inferring or deducing; giving reasons for things known and observed; reasoning from events and past experience
3. generalizing - exposition of events; chronology of past events
4. speculative - offering hypotheses; incorporating causal relationships; reflecting on events and drawing conclusions.

The ratings were tabulated and group means calculated. Comparisons were made by t test between the experimental and experimental-control groups, the experimental and control groups, and

the experimental-control and control groups.

Socio-emotional development

The purpose of this enquiry was to investigate the assertion that there is greater socio-emotional development of children in vertically grouped classes than in horizontally grouped classes. The specific areas of socio-emotional development that were investigated were: (a) anxiety toward school, (b) self-esteem, (c) social maturity, (d) emotional security and (e) aspiration to school tasks.

Subproblem Two: Anxiety toward School. The purpose of this study was to test the hypothesis that there are lower levels of anxiety toward school admitted by children in vertically grouped classes than the anxiety toward school admitted by those in horizontally grouped classes.

Instrumentation. To determine levels of anxiety among the children, Sarason's Test Anxiety Scale for Children (TASC) (Sarason et al., 1960) was used. The 30 items in TASC are worded in the form of questions so that the subject can answer them with either "yes" or "no".

Sample. Third year children in the research sample were administered the TASC. N = 84

Method. The scale was administered individually by the investigator who read the questions and recorded each child's responses. Details of the administration of the test with the full text of the test are given in the Appendix C, p. 190 ff.

Preparation of Data. Results took the form of individual scores which were the sum of items answered in the affirmative, i.e. in which feelings of anxiety were admitted. These scores were tabulated and mean scores and standard deviations were calculated. Comparisons were made by t test for the experimental and control groups, the experimental and experimental-control groups, and the experimental-control and control groups.

Subproblem Three: Self-esteem. The purpose of this study was to test the hypothesis that children in vertically grouped classes demonstrated higher levels of self-esteem than those in vertically grouped classes.

Instrumentation. Levels of self-esteem were determined by the use of Coopersmith's (1967) Self Esteem Inventory (SEI). The SEI produces individual scores for four factors: (1) general self, (2) social self-peers, (3) home-parents, and (5) school-academic together with factor (4), a lie scale. The test consists of 58 items so stated that the subject responds with either "like me" or "not like me".

Sample. The inventory was administered to third year children in the study sample. N = 82

Method. The investigator applied the test by reading the statements to individual children and then recorded their oral responses to each item. Complete details for the administration of the test together with the full text of the test are found in Appendix D, p. 196 ff.

Preparation of Data. The results produced individual and composite scores for the four factors: (1) general self, (2)social self-peers, (3) home-parents, and (4) school-academic. The scores were tabulated and mean scores and standard deviations calculated. Comparisons were made by t test between the experimental and control groups, the experimental and experimental-control groups, and the experimental-control and control groups.

Subproblem Four: Social Maturity. The purpose of this research was to study the degree of socialization of the children used in the study.

Instrumentation. The information was generated from direct classroom observations as well as from time sampling techniques with the use of video-taped records of the classes.

Sample. The observations were made in the three experimental

classrooms, the experimental-control classroom, and the two control classrooms. Six classrooms made up the sample.

Method. A video recording schedule was made up to include one, one hour practice and orientation for children in the classes, followed in the morning of a second day with a 45 minute recording session. The video recording was done by a graduate student in education.

The investigator recorded classroom activities for the same period as the video records.

On the afternoon of the taping session the investigator conducted stimulated recall individually with three children and the respective teachers of the classes.

Preparation of Data. The video tapes, recorded interviews and observation notes were studied to find patterns and occurances in the classrooms that would illuminate the question, "Are there differences in the social behaviour of the children in these classrooms?" Time sampling techniques were applied to the video tapes of three five minute segments for each class, yielding a total of 15 minutes for each class for a total of 90 minutes or 18 segments.

Pupil activities, group activities and interactions were recorded following the methods of Marland (1977). In addition the observational codes of Gump (1967) and Perkins (1965) were used to determine differences in classroom functions, pupil activity and teacher role. Where applicable audio recordings of teacher's and

children's interviews were used to clarify and/or supplement observation records.

Classroom observations were analyzed individually, and comparisons were made by chi-square for the experimental and control groups, experimental and experimental-control groups, and experimental-control and control groups.

Subproblem Five: Emotional Security. The purpose of this study was to test the hypothesis that children in vertically grouped classes have greater emotional security attributable to the longer child-teacher relationship than do those in horizontally grouped classes.

Instrumentation. With permission from the author, Mycock's (1966) projective techniques were used to test the hypothesis. Child-teacher relationships were studied by methods designed to give insight into these relationships through 1. a sentence completion test and 2. a drawing test.

1. Sentence completion test. Mycock's instrument consisted of 20 incomplete sentences phrased in the first person, arranged in 10 pairs and aimed at specifically defined situations; each pair requiring the expression of feelings or attitudes connected with (a) the mother and (b) the teacher in the constant order.

e.g. 6(a) When I try to help my mother she says _____

6(b) When I try to help my teacher she says _____

Sample. Third year children in the research sample were used. N = 82

Method. The investigator administered the test individually by reading to the children the statements and recording verbatum their oral responses. In this way all responses were recorded on individual test sheets containing the ten pairs of incomplete statements. The investigator practised the use of the method in a school not included in the research sample. A copy of the test sheet with full instructions appears in the Appendix E, p. 208 ff.

Preparation of Data. The responses were coded by the investigator in terms of a three-point scale of symbols:

0 - neutral response
1 - negative response
2 - positive response

The coded responses were then categorized according to frequency with which (a) each symbol was contained in the data or (b) each pair of symbols was contained in the data. The frequency distribution was tabulated and chi-square comparisons were made of the experimental and control groups, the experimental and experimental-control groups, and the experimental-control and control groups.

2. The Drawing test. Drawings of children were used in this projective technique.

Sample. Third year children in the study sample were given the activity. N = 78

Method. The investigator distributed a prepared folder (two hinged pages of manila paper 9"x12") to the children. Following uniform instructions, the children were asked to make inside the folder two drawings, of self and mother, and self and teacher engaged in any activities the child might choose. Each child used his own pencil and crayons. Complete freedom was stressed in the order of the drawings and choice of colours. No time limit was given. After the drawings were completed either the child or the investigator, on request of the child, wrote a brief description for each picture. An example (reduced) of the drawings of one child is given in Appendix E, p. 214.

The activity was practised by the investigator in a non-study classroom and the results used in the training session for judges.

Preparation of Data. Quantitative data was compiled by the investigator for:

(a) order of execution of the drawings,

(b) types of activities depicted

(c) size (length) of mother, teacher and child figures.

The investigator worked cooperatively with another judge, selected for her professional knowledge of children and their art, to judge the pictures for "warmth of relationship" as depicted by the activities and positions of the figures in each drawing. The judgements were made on the overall feeling expressed by the picture rather than

particular detail of the representations. In judging the warmth of relationship the following dimensions were considered: the placement of figures, rigidity of figures, angularity of figures, degree of compression in drawing and intimacy of depicted situation.

Each drawing was globally evaluated on a 4-point scale of:

1 - cold
2 - not very warm
3 - warm
4 - very warm

The drawings were then compared and rated on the direction of feeling on the following scale:

1 mother picture warmer than teacher picture
2 teacher picture warmer than mother picture
3 both pictures depicting similar qualities of warmth.

Chi-square comparisons were made for the experimental and control groups, experimental and experimental-control groups, and experimental-control and control groups.

Subproblem Six: Levels of Aspiration to School Tasks. The purpose of this study was to test the hypothesis that children in vertically grouped classes have higher levels of aspiration to school tasks than do those in horizontally grouped classes.

Instrumentation. The task for this study adapted from Mycock (1966) was one that could be repeated several times that the subject, on the basis of his attainment in any trial, could set the goal for the forthcoming attempt. The task had to be equally suited to the powers of children in their first, second and third year of

schooling, as well as novel, challenging and absorbing.

The test was a peg-fitting task chosen because peg-boards are part of the structural mathematical equipment of elementary schools and often found as toys in the homes of children. The apparatus consisted of a length of peg-board approximately 12" by 30", divided by masking tape into three equal sections, each containing approximately 100 holes. Two shallow containers holding a number of domed plastic pegs were also used. The task was field tested by the investigator in non-study classrooms.

Sample. All third year children in the research classes as well as a ten percent random sample of first and second year children were given the test. N = 105

Method. The investigator worked individually with the children and gave each an initial timed trial of twenty seconds in order to enable the children to select for themselves a level of aspiration to which attainment in the first trial could be compared. In each of four consecutive trials of 20 seconds, the prior trial was left in view of the child. Alternate sections of the board were used in each case. The investigator recorded all estimates and attainments.

The procedures of the task had been practised by the investigator in a school not used for the study. Details of the exact application of the test are given in the Appendix F, p. 216.

Preparation of Data. From the procedure the investigator obtained an initial attainment score, four levels of aspiration (estimates of what the subjects thought they could do) and four attainment scores (actual achievement in fitting pegs into the pegboard). The data was tabulated and mean scores for attainment and aspiration were calculated. Goal discrepancy scores for each subject were determined for the four timed trials: Comparisons were made by t tests for the experimental and control groups, the experimental and experimental-control groups, and the experimental-control and the control groups.

Learning Milieu

The purpose of this research was to study the effects of vertically grouped classes on: (1) teacher workload, (2)a. social structure of classrooms, (2)b. classroom climate, (3) cross age interaction, (4) flexibility of class organization, (5) retention of pupils, and (6) reactions of parents to vertical grouping.

Subproblem Seven: The Workload of teachers. The purpose of this study was to test the hypothesis that the teachers of vertically grouped classes have a heavier workload than do teachers in horizontally grouped classes.

Instrumentation: The information was generated by the keeping of a daily diary by these teachers for a period of two weeks. Prior to the investigation, the researcher solicited from a number of

teachers in schools not used in the investigation, the types of activities engaged in by teachers in the general pursuit of their teaching duties. These responses were clustered and organized into a listing of teaching activities which were duplicated to become the form of a diary in which teachers would record the time spent each day on the specific activity. A sample of the diary appears in Appendix G, p. 223 ff.

Sample. The sample for this research was the six teachers of the six classes in the research sample.

Method. The two week diary was distributed to teachers and they were requested to enter in the diary their actual time involvements each day.

Preparation of Data. The data was reviewed and tabulated in minutes / week / teacher. Chi-square comparisons were made for the time spent in the experimental and control groups, the experimental and experimental-control groups and the experimental-control and control groups.

Subproblem Eight: Social Structure of the Classes.

a. Social structure of the classes. The purpose of this research was to test the hypothesis that vertically grouped classes have better social structure than do horizontally grouped classes.

Instrumentation. The social structure of the classes was studied by the collection of sociometric data by the three question technique used by Dinkmeyer as applied by Fasano (1977).

Sample. Third year children in the experimental-control and control classes and all children in the experimental classes were used for this test. N = 129

Method. Each child was given a paper on which they were asked, in the presence of their classmates, to place three names in response to the following three questions:

a. who do you like best to sit beside?
b. who do you like best to work with?
c. who do you like best to play outdoors with?

Preparation of Data. The data was processed to generate a sociograph for each class. Details of the development of the sociograph are found in the Appendix H, p. 240 f.

Further calculations were done to determine the number of selections for each child and these tabulated by frequency of the respective numbers of selections. Comparisons of the sociographs were done by visual inspections; while frequencies of selection had applied chi-square comparisons for the experimental and control groups, the experimental and experimental-control groups, and the experimental-control and control groups.

b. Classroom Climate. The purpose of this research was to

test the hypothesis that there is a better classroom climate in vertically grouped classes than there is in horizontally grouped classes.

Instrumentation. The classroom climate was assesed by the use of Anderson and Walberg's (1968) My Class inventory.

Sample. Third year children in the research sample were used in this research. N = 83

Method. My Class inventory was administered orally to each child in this sample. The investigator recorded the oral responses for each child to the 45 items which require a "yes" or "no" response. e.g."31. Children seem to like the class". Details of the administration of the test and the full test are given in Appendix H, p. 243 ff.

Preparation of Data. The My Class inventory generates separate scores for five factors: satisfaction, friction, competitiveness, difficulty, and cohesiveness. The responses were tabulated to give scores for each of the five factors as well as a total score. Mean scores and standard deviations were calculated for each group of the sample. Comparisons were made by t tests for each factor, plus the total, for the experimental and control groups, the experimental and experimental-control groups, and the experimental-control and the control groups.

Subproblem Nine: Cross-age Interactions. The purpose of this research, was to test the hypothesis that the cross-age interactions of children in vertically grouped classes will be greater than the interactions expected by chance.

Instrumentation. Information for this study was collected through observation of the interactions of children during free play on the school grounds.

Sample. The sample for this specific study was a stratified random sample of 25 percent of first, second and third year children in the experimental classes. Because of the large number of children in School B, the fact that the control classes were modal age, and the lack of trained observers, the study was done with the vertically grouped classes only. The sample consisted of six first year children; six, second year; and six, third year for a total of 18 children.

Method. The investigator worked with five trained observers on four separate days during morning recess and noon play periods. The six judges worked in pairs, one observing while the other recorded the activities. Observations were kept for five minute intervals for each subject affording a total of twenty minutes for eighteen subjects.

Children under observation were identified by a colored

geometric shape attached to their clothing. All children in the primary division in School A were identified by: triangles for first year children, squares for second year children, and circles for third year children.

Preparation of Data. The recorded frequencies of interactions were tabulated to provide statistics of the interactions of the respective age levels with other ages, and designated as social, anti-social and solitary. Social interactions were of the nature that the children conversed or played without evidence of physical or verbal hostility. Anti-social actions were judged to be those in which there was physical or verbal hostility demonstrated. A solitary action was judged to be those periods during which the child remained by himself either observing, or involved in a singular activity; e.g. leaning against a wall, or wandering about by himself.

Chi-square comparisons were made between expected and observed frequencies.

Subproblem Ten: Flexibility of Class Organization. The purpose of this research was to test the hypothesis that vertically grouped classes have greater flexibility in organization than horizontally grouped classes.

Sample. The six classes of the research sample were used for this research.

Method. Information for this study was generated by a study of school records, informal discussions, visitation, classroom observation through video tape and interviews.

Preparation of Data. Flexibility of class organization was characterized as providing accessibility of help for children, flexible grouping practices, use of multi-task activities, and provision for individual learning styles.

Video taped records and classroom observations were used to generate data for the above characteristics. Interactions among children and teachers were tabulated for three five minute segments for each class. Descriptions of characteristics were also developed. Comparisons by chi-square were made where appropriate between the experimental and experimental-control groups; the experimental-control and control groups; and the experimental and control groups.

Subproblem Eleven: Retention of Students. The purpose of this research was conducted to test the assertion that there is a lower retention rate of children in vertically grouped classes than in horizontally grouped classes.

Sample. For this study Schools A and B were used.

Method. Unobtrusive methods of data collection were used for this research. The information was obtained by the investigator through an inspection of the school records. Statistics were gleaned

to identify the age, placement and period in school for each of the children in the study sample. The period from 1977 to 1980 was the span of the search.

Preparation of Data. The information was tabulated for age and years in school and chi-square comparisons were made of the frequencies between the experimental groups and School B.

Subproblem Twelve: Reactions of Parents. The purpose of this research was to determine the reactions of parents to vertical grouping.

Instrumentation. A questionnaire was developed using parts of Parent Opinion Inventory, Revised Edition, as a model. It was intended to assess parents' attitudes in reference to the school program their children had in grades primary, one and two. The questionnaire, Part A, consisted of thirteen statements for which the respondent was to give a forced response on a five point scale from "highly agree" to "highly disagree". Part B consisted of questions designed specifically for the parents of the vertically-grouped classes, and contained four questions requiring answers of "yes" or "no" with comments. A copy of the questionnaire appears in Appendix I, p. 254 ff.

Sample. The sample for this research was a 25% random sample

of the parents of the experimental, experimental-control and control groups. N = 25

Method. The questionnaires were distributed with the children who returned them to their teachers. The full questionnaire was sent to the parents of the children who were in the experimental group. Part A only of the questionnaire was sent to the parents of children in the experimental-control and control groups.

Preparation of Data. The questionnaire generated information that was tabulated. Means and standard deviations were calculated. Comparisons were done by t test and chi-square of the experimental group and School B.

The results of Part B were tabulated and analysed separately.

Summary

The research was conducted to investigate the general hypothesis that vertically grouped classes have advantages for the development of children not found in horizontally grouped classes. As well, the workload of teachers and reactions of parents were studied. Six classes in two schools were selected for the study. Vertically grouped classes were compared with a class of third year children with similar organizational patterns of grouping and two horizontally grouped classes that used the conventional classroom organiation.

Academic achievement and socio-emotional development were studied by using standardized as well as non standardized methods of

data collection. Learning milieu was investigated by means of quantitative as well as qualitative descriptions of classroom activities and child behaviour.

The results and analysis of the study are reported in chapter 4 of this thesis.

CHAPTER 4

RESULTS OF THE INVESTIGATION

Introduction

This chapter contains the findings from the investigation of the research hypothesis of the study; that is, that there is no difference between the development of children in vertically grouped classes from the development of children in horizontally grouped classes. Included also are the results of the study of workload of teachers and the reaction of parents to vertical grouping. Each of the 12 subproblems is presented in order, and for the reporting of these, a similar format is used. The subproblem is stated and the results discussed. In some cases supportive data and analyses have been placed in the Appendix for more complete reporting.

Academic Achievement

Subproblem One: Academic Achievement

Purpose. The purpose of this study was to test the hypothesis that there is no difference in the academic achievement of children in vertically grouped classes from the academic achievement of those in horizontally grouped classes. The academic achievements that were assessed are (a) language arts and math skills, (b) level of development of mathematical understanding, and (c) written expressive language. Each of these is presented in a similar way, giving the results and discussion of those findings. The methods of the research

are related on p. 58 ff. of this report.

a. Language arts and math skills. Language arts and math skills were tested by the administration of the Canadian Test of Basic Skills.

Results. The results present very similar means for achievement levels of the three research groups. In the subtest of spelling the achievement of the experimental-control group was significantly higher than the control group at the five percent level of confidence; while in the subtest of mathematical concepts the higher achievement of the control group over the experimental group was reaching significance at the five percent level of confidence. Table 2 contains this data.

A survey of the individual scores gained by the subjects indicates that in reading, using the test norm as the criterion, the mean scores of the experimental group is two months below the grade placement for the time of testing (2.9). The range, expressed in grade equivalents, is from 1.4 to 4.9, a total of three years, five months. Further inspection reveals that 42 percent of the cases fall below the grade placement.

The experimental-control group presents data which reflects a grade range of three years, two months (1.5 - 4.7) with 32 percent of the cases below the grade placement of 2.9. The control groups gained a reading range of three years, eight months (0.9 - 4.7) with 50 percent

of the cases falling below the grade placement. Table 3 contains these data.

Table 2

Mean Scores and t Statistics for Canadian Tests of Basic Skills

Subtest	Vocabulary (V)			Reading (R)			Spelling (L)		
Group	Ex	Ex-C	C	Ex	Ex-C	C	Ex	Ex-C	C
Mean	16.78	18.89	15.49	41.22	46.21	39.29	15.78	17.74	15.06
SD	6.59	5.60	6.95	13.62	10.67	14.63	5.79	4.08	4.80
n	23	19	35	23	19	34	23	19	35

Ex vs Ex-C	t 1.0786	1.2704	1.2088
Ex vs C	t 0.6972	0.4916	0.5088
Ex-C vs C	t 1.804	1.774	2.023*

Subtest	Math Concepts (M-1)			Math Prob. Solv. (M-2)		
Group	Ex	Ex-C	C	Ex	Ex-C	C
Mean	18.35	18.89	20.49	17.57	18.53	18.26
SD	3.63	2.83	4.10	4.73	4.90	4.39
	23	19	35	23	19	35

Ex vs Ex-C t	0.5230	0.6300
Ex vs C t	1.995***	0.5595
Ex-C vs C t	1.479	0.2026

* $p < .05$

*** p approaching .05

Table 3

Achievement Levels Expressed in Grade Equivalents

Group	Ex					Ex-C					C				
subtest	V	R	L	M-1	M-2	V	R	L	M-1	M-2	V	R	L	M-1	M-2
mean	2.7	2.7	2.4	2.6	2.8	2.9	3.0	2.7	2.7	2.9	2.4	2.6	2.3	2.8	2.8
low	1.0	1.4	1.1	1.7	1.7	1.5	1.5	2.0	2.3	2.0	0.8	0.9	1.0	1.4	1.5
high	4.2	4.9	4.9	3.7	3.5	4.6	4.7	3.9	3.7	4.5	5.5	4.7	4.5	4.2	4.0
range	3.2	3.5	3.8	2.0	1.8	3.1	3.2	1.9	1.4	2.5	4.7	3.8	3.5	2.8	2.5
% below 2.9	50	42	71	58	54	37	32	53	58	47	57	50	80	54	63

Of the three groups tested, the experimental-control group had the lowest proportion of children reading below their grade placement followed by the experimental group and then the control group. The widest range of achievement in reading was found in the control group with the narrowest range in the experimental-control groups. The experimental group demonstrated the highest reading level while the control group contained the lowest reading level.

A similar scatter of individual cases appear in the area of mathematical learnings, as measured by subtest M-2, problem solving, as was found in reading scores. The experimental group has the narrowest range of scores while the control group and experimental-control group had the widest. Further inspection of the data indicates that the experimental-control group had fewer children functioning below grade level followed by the experimental group and then the control group. Complete data for this research are found in Appendix B, p. 181 ff.

Discussion. Relevant to the discussion is the basis on which the classes were established initially in the year of testing. A search of the records in the schools revealed that the children in the experimental group remained in vertically organized classes for the three years. In the control school, however, the third year classes were made up on the basis of reading scores gained the previous year. Achievement groups were identified and then distributed among four classes, three of which are included in this study.

These classes contained average and above average achievers (stanines four through nine) as judged by tests administered the previous spring.

The results of this test take on an added dimension in this context. The experimental group contained the complete range of achievers in their third year, and achieved equally as well as the experimental-control and control groups. This is, indeed, a crucial factor in considering the achievement of children in the vertically grouped classes of this study.

Because the control classes had fewer children than either the experimental or experimental-control classes achieving at or above their grade placement in reading and mathematics; it is proposed that an informal approach to teaching through grouping for instruction is more advantageous than a conventional approach to teaching. Because there were no significant differences between the experimental and experimental-control classes in these school subjects, it is further proposed that the differences in achievement are not as a result of the wide age span of the children.

b. Development of mathematical understanding. Development of mathematical understanding was assessed by two tests described on p. 59 f. of this report.

Results. The results of these tests presented very similar levels of mathematical understandings in the conservation of discontinuous quantity and the additive composition of numbers among the three groups tested. There were no significant differences found in the comparisons of the data. From Table 4 it may be seen that all the research groups have higher proportions functioning at level three in the conservation of discontinuous quantity than in understanding of the additive composition of number, part to whole. The experimental-control group has the most children functioning at level three for conservation of discontinuous quantity followed by the control group and then the experimetal group. For understanding of the additive composition of number, part to whole, the control and experimental group are similar, followed by the experimental-control group. The experimental-control group demonstrates the greatest proportion of the childrn functioning at the lowest levels of conservation in these mathematical understandings.

Table 4

Frequencies of Levels of Development in Mathematical Understandings

Group	Ex				Ex-C				C			
Task	a		b		a		b		a		b	
Stages	f	%	f	%	f	%	f	%	f	%	f	%
1	6	25	15	63	3	15	12	60	9	24	16	42
2	4	17	1	4	2	10	2	10	3	8	9	24
3	14	58	8	33	15	75	6	30	26	68	13	34
n	24	100	24	100	20	100	20	100	20	100	38	100

chi-squares

a. Ex vs Ex-C = 1.3513 Ex vs C = 1.2429 Ex-C vs C = 1.8715

b. Ex vs Ex-C = 4.6991 Ex vs C = 4.6991 Ex-C vs C = 2.2256

a represents conservation or discontinuous quantity
b represents understanding of additive composition part to whole
f frequency
% percentage

The level of mathematical understanding was also developed for a ten percent sample of first and second year students in the experimental classes and the control school. Tables 5 and 6 contain these data.

The results suggest that five year olds in the vertically grouped class have a higher level of conservation than do first year children in a conventional classroom ($p < .05$). This advantage is not found in the results for the additive composition of numbers as expressed in relation of part to whole.

Table 5.

Data for First Year Subjects for Mathematical Understanding

	Task 1		Task 2	
Stage	Ex	Control	Ex.	Control
1	0	4	3	4
2	2	1	0	1
3	3	1	2	1
T	5	6	5	6
chi-square	7.694* ($p < .05$)		2.954	

Table 6

Data for Second Year Subjects for Mathematical Understanding

	Task 1		Task 2	
Stage	Ex	Control	Ex	Control
1	2	2	2	3
2	0	0	2	0
3	4	4	2	3
T	6	6	6	6
chi-square	0		2.40	

Discussion. A discussion of these data will contain conjectures that may be put forward. There appears to be an inverse relationship between the levels of mathematical understandings and the achievement of children as tested on standardized tests. The larger number of children functioning at level one in the Piagetian tasks in the experimental group should reflect class means lower than the expermental-control and control groups in the subtests of mathematics

in the CTBS. This, however, is not the case since the class means are very similar with no statistically significant difference except in math concepts, (M-1) (Table 4), between the experimetal and control groups. The experimental-control group has a high relationship between the conservation of discontinuous quantity and the math concepts subtest (M-1), but this is not reflected in their achievement in mathematical problem solving (M-2) (Tables 3,4).

The performance of second year students is not significantly different in either organization. From this small study it is suggested that conservation of quantity is developed at an earlier age with the vertically grouped classes. But understanding of the composition of numbers is not enhanced.

This study found significant differences in concept development in mathematics only for first year children in the vertically grouped classes. It does suggest, however, that because of the nature of mathematical development in young children it is not greatly enhanced by informal strategies in teaching in this discipline.

c. Written expressive language was assesed by a motivated writing activity.

Results. The results present statistically significant differences at the one percent level of confidence in favour of the experimental group over the experimental-control group and at the five percent level over the control group. The mean scores in Table

indicate these differences. There were no statistically significant differences found between the experimental-control and control groups. The data for this activity are found in Appendix B, p. 187.

Table 7

Mean Scores of Attainment in Written Expressive Language N = 78

Group	Ex	Ex-C	C
mean	2.8	1.972	2.157
SD	1.029	0.634	0.939
n	25	18	35
	t = 2.9520**		
		t = 2.4680*	
			t = 0.7374

* p < .05
** p < .01

Discussion. The discussion of these data will relate them to the data found in the skills tested on the CTBS reported in Tables 2 and 3. The pattern of reading attainment reflects the development in written language development and lends credence to the relationship of these two school learnings. Approximately forty percent of the cases in the experimental group were moving toward the formal concrete level of language as described by Wilkinson (1980). None of the experimental-control group and approximately 22 percent of the control group had reached this level of development.

This finding, together with the results of the reading tests of the CTBS, would suggest that the cross age grouping as well as the extended period of time in the multi age class has a positive effect on the academic learning of children. Because the experimental group

gained higher results than the experimental-control and the control groups the researcher suggests that it is the wide age range in the vertically grouped classes rather than classroom organization that is the influencing factor.

It is further hypothesized that the extended period of time that children have together has the advantage for them to experiment with language with older children, which in turn heightens the quality and level of their expression. Further, the informality of the classes which encourages verbal interactions among children together with a longer period of writing opportunities might create a heightened development of written expression. Younger children have examples of writing of older children and can model and fashion their writing after it.

Similarly, it could be reasoned that more of the day proportionately is spent in language related activities and, therefore, would favour the development of language over the development of mathematics which required intentional instruction for achievement.

The results of this test must be approached with caution, but as a result of this study, the null hypothesis is rejected. The academic achievement of children in vertically grouped classes is different from the achievement of children in horizontally grouped classes. Written expressive language as well as the level of reading development appear to be more diversely developed in vertically grouped classes. Mathematics, however, does not have the same achievement advantage.

Socio-emotional Development

Subproblem Two: Anxiety to School

Purpose. The purpose of this research was to test the hypothesis that there is no difference in anxiety toward school displayed by children in vertically grouped classes from the anxiety of children in horizontally grouped classes.

The method of the research is found in Chapter 3 p. 62 f.

Data for this section appear in Appendix C, p 194.

Results. Data collected in this research exhibit small differences between the mean scores of the study classes (Table 8). These differences are not statistically significant. The incidence of anxiety presents a similar pattern for each of the classes studied with highest proportion of cases demonstrating moderate anxiety. The null hypothesis was supported in this study.

By inspection of the incidence of anxiety across the classes (Table 9) it appears that the experimental group has a higher proportion of children expressing moderate anxiety than children in either the experimental-control or control classes. The experimental-control group demonstrates the highest proportion of high anxiety followed by the control class, with the experimental class exhibiting the lowest proportion of cases expressing this degree of anxiety.

Table 8

Mean Scores of Test Anxiety Scale for Children (Sarason) all Third Year Children. N = 84

Classes	Ex	Ex-C	C
n	25	20	39
mean	11.68	12.3	10.56
SD	4.006	6.124	5.64
	t = 0.397		
		t = 0.843	
			t = 1.0677

Table 9

Incidence of Anxiety (All Children) N = 84 (Boys = 48; Girls = 36)

	Ex			Ex-C			C		
Anxiety level	Boys	Girls	T	Boys	Girls	T	Boys	Girls	T
None (0)							1		1
Low (1-6)	1		1	1	1	2	6	3	9
Moderate (7-14)	10	10	20	8	3	11	11	9	20
High (over 14)	2	2	4	4	3	7	4	5	9
Totals	13	12	25	13	7	20	22	17	39

At the same time the control classes and experimental-control class have a higher proportion of low or no anxiety than does the experimental class. The same pattern holds for both boys and girls, but the results are more similar for boys and girls in the experimental class than in the other two research groups.

Discussion. Researchers who have studied the anxiety of children have stated that girls generally exhibit higher levels of anxiety toward school than do boys. For the present study this holds for the experimental-control and the control groups but the experimental group presents a closer expression for both boys and girls.

It is possible that the vertically grouped children have a more comfortable and secure feeling about school and therefore express slightly lower anxiety levels than do the other groups. The longer period of time with school mates and teacher does perhaps create more confidence in children about their work and school.

The mean scores for this sample were considerably higher than those found by Mycock (1966) who reported findings lower than other researchers. She suggests from her study of children that more permissive schools might produce heightened anxiety because of the close emotional bond between teacher and child, as one would find in a consistently affectionate home.

She found a much higher number of children exhibiting no anxiety or low anxiety than in the present research. This is perhaps attributable to the different cultures and school atmospheres in the two countries. In the schools of this study the general school environment is slightly more formal with considerably different teaching stratagies, than found in schools in England.

Thus, as far as this test reflects a child's emotional state, it would appear there is little difference among the three

organizational patterns under study. The null hypothesis is supported.

Subproblem Three: Self-esteem of Children

Purpose. The hypothesis addressed by this section is that there is no difference in the self-esteem of children in vertically grouped classes from children in horizontally grouped classes.

The methods of the research are related on p. 63 f. of this report.

Complete data appears in Appendix D, p. 203 ff.

Results. The data collected for this research exhibit no statistically significant differences among the study sample. Mean scores are so similar that obvious trends cannot be identified. Tables 10 and 11 contain these data.

Table 10

Mean Scores for Coopersmith Self Esteem Inventory
All Third Year Children N = 82

Classes		Ex	Ex-C	C
Factor 1	m	38.83	38.00	39.11
	SD	6.05	7.04	5.91
Factor 2	m	12.12	12.20	12.36
	SD	2.44	2.60	2.46
Factor 3	m	11.66	12.80	12.73
	SD	1.88	2.40	2.26
Factor 5	m	11.58	12.40	12.47
	SD	3.05	3.00	2.76
Total	m	74.13	75.40	76.63
	SD	8.99	11.50	10.25
	n	24	20	38
Factor 4	m	3.92	4.5	4.66
(Lie Scale)	SD	1.66	1.80	1.83

Table 11

t-Scores of Comparisons of Mean Scores
Coopersmith Self Esteem Inventory

Classes		Ex vs Ex-C	Ex vs C	Ex-C vs C
Factor	t	0.412	0.172	0.622
1	df	42	60	56
Factor	t	0.043	0.309	0.207
2	df	42	60	56
Factor	t	1.713	1.897	0.097
3	df	42	60	56
Factor	t	0.869	1.165	0.092
5	df	42	60	56
Total	t	0.403	0.967	0.409
	df	42	60	56
Factor 4	t	1.090	1.579	0.307
Lie scale	df	42	60	56

Discussion. Self esteem is generally considered a factor of self-concept and in that context, the present data presents another descriptor of the development of young children as they progress through the educational system. As is indicated by this instrument, self-esteem has many and varied stimulators, not least of which is the home environment and the peer group.

In considering the results, the lie scale should reflect on the reliability of the other data recorded. As was pointed out, young

children are in the formative stages of development of a self-concept, for which self-esteem is a highly significant indicator. These children appear to be functionning in a transitional stage of moral realism; i.e., their judgements are based on immediate past experience rather than the broader context of consequence. If this be the case, the total mean scores of the subtests falling in the lower range of the test mean (70-80) suggests the development of a self-esteem that will solidify later. The lower scores on the lie scale may suggest a higher defence mechanism than might be found with older children.

Factor 5, school-academic, is perhaps the most releyant factor of the instrument for this specific hypothesis, as the study is specifically oriented to school learning. The results suggest that children generally have medium-high esteem as it relates to school.

The data in general support the null hypothesis that there is no difference in the self esteem of children in vertically grouped classes from those in horizontally grouped classes.

Subproblem Four: Social Maturity of Children

Purpose. The hypothesis for this study is that there is no difference in the social maturity of children in vertically grouped classes from the social maturity of children in horizontally grouped classes. Details of the research method are reported on p. 64 ff: of this report.

Social maturity of children for this study describes the degree to which children exhibit behaviour appropriate to their particular classrooms (Hamilton 1983:314). In the preparation of the

data it was discovered that each class had its own unique structure, and, therefore each has been studied independently of the others.

Results. The video tapes presented an overall impression that is best described and supported by direct classroom observation and teacher stimulated recall from video taped observations.

The experimental classes demonstrated a variety of group structures which included, on occassion: (1) large group discussion with the teacher functioning as a leader; (2) common assignment of seat work for small groups while other groups functioned individually; (3) small group recitation with teacher functioning as resource person and supervisor, and small groups working co-operatively but independently of teacher and other groups. The proportion of time devoted to the activities varied with teachers and nature of the learning.

The video tapes and notes of classroom observation reveal as many as five subgroups working independently of each other at certain times in a single classroom. Further it was found that within groups individual children were pursuing different tasks e.g. in reading and mathematical activities.

In each of the experimental classes, the physical structure of the room accommodated many group activities with areas designated specifically for particular pursuits; e.g. math area, painting area, language area, library, listening centre and "theatre" area.

The degree to which the classrooms were visually "open" appeared to reflect the particular style of the teachers. Each room, however, had physical dividers that doubled for storage, work areas

and sound baffles.

The video tapes and observation revealed an interaction between children, teacher and physical environment. The behaviour of the children reflected this interaction. For instance, as children completed their assigned task, they were able to go to another area of the room which might have been a listening centre, a library area or paint area. The children moved to these areas directly without interrupting group work pursued in other areas. Table 12 contains the frequencies of interactions of children with other children and the teacher.

Table 12

Classroom Interactions 5 Minute Segments x 3 x 6 = 90 Min.

Interactions	Classes		
Group	Ex	Ex-C	C
child social	7	13	16
child helping	35	1	
child anti social	2		
teacher desist	4	3	1
teacher help	9	1	3
child to teacher	20	5	10
Total	77	23	30
chi-square	31.470****		
chi-square	34.688****		
chi-square		4.141	

**** $p < .001$

The experimental-control class presents a structure described by Gump (1967) as private and interdependent groups; i.e. some groups were involved in activities requiring children to interact with one another in a group as in Spello or math "trading game"; while others were sitting about a table doing a common assignment individually. During this time the teacher circulated among the five groups helping individual children and acting as a supervisor as described by Perkins (1965).

The children went to their groups and remained until their work was completed or the teacher called for an exchange of activities. The observations produced interactions which would be considered to be social by nature. There were few opportunities observed in which children would have the opportunity to interact. From observation the children appear to have a low level of involvement. It was observed that in the absence of teacher they squirmed and fidgetted, talked to one another, (Table 17), and displayed little direct involvement. This observation was later supported by the teacher through interview.

The physical structure of the room is such that all groups are in visual contact with each other and the teacher. The classroom contained 20 individual student desks, as well as two circular tables and two rectangular tables, all supplied with chairs.

The control classes, presented in many ways, a similar physical structure as the experimental-control classroom. The functioning of the class was reflected in the furnishings which consisted of individual pupil desks in conventional rows together with

two rectangular tables and chairs.

The class structure reflected a recitation or lecture orientation in which children listened and responded on ocassion. The teachers functioned as leader-director conducting the presentation of information followed by seat work of worksheets, identical for all children. The child interactions observed in Table 12 were noted during the segments of seat work activity. The interaction of children with one another were of a social nature rather than reflecting common concern for a problem.

Comparisons by chi square revealed highly significant differences, ($p < .001$), between the experimental group and the experimental-control and control groups while the difference between the experimental-control and control group was not significant.

Discussion. In a recent article, Hamilton (1983: 319) cites Parsons (1959) as saying that opportunities for peer interactions in and around school are critical to socialization children need to learn. He further contends that there are "hidden elements" influencing the socialization process. Influences of the structures of the school and classroom socialize outside the teacher's knowledge and intention. Bossert (1979) cited in Hamilton (1983; 324) identifies two types of classrooms: "recitation" and "multi-task" reflecting the activity structures. The recitation structure contains public performance for both teacher and pupil, while the multi-task structure involves more private and "noncomparable" behaviour. In

this structure the teacher uses personal influence as a sanctioning technique.

The classes under investigation fall neatly into the two structures defined by Bossert. Other researchers (Mehan, 1979; Spencer-Hall, 1981; Gump, 1980) purport that there is a relationship between the academic achievement of children and their socialization.

Since the social maturity of children for this study is the degree to which their socialization demonstrates acceptable behaviour in their group (i.e. the classroom) the researcher believes that this construct may be determined by their overt behaviour; further, that the norm for the behaviour is not constant, but changes with each new segment in the teaching day, c.f.Gump (1980).

Further it is hypothesized that each class in concert with the teacher will determine the acceptable behaviour. Because the norm or standard of behaviour varies with each class, and changes for each new instructional segment, it is difficult to compare the children from different classes by quantifying observed behaviours.

To illustrate this point, the behaviour patterns of children in the study may be cited. In the experimental classes children appeared to be engrossed in the work they were doing at their respective tables. Multi-tasks were in evidence. When a child became stuck, met a problem, or needed help, he went quite naturally to another child or the teacher for assistance. This action was taken directly and the child returned to his work. The number of interactions between children recorded in Table 12 indicates the quantity but not the quality of these interactions or behaviours. In

the experimental-control and control classes, there was little opportunity for this interaction to take place. The teaching orientation precluded such interaction.

In the experimental-control and control classes, while children were not directly interacting with the teacher, they were non task oriented; i.e., they held social conversations, sat and watched others or physically moved in their seats. These actions were not observed in the experimental group. To the teachers these actions were acceptable behaviours and left unchecked.

Acceptable behaviour in the classes under observation had no common norms because the teachers did not all have common criteria for routines. This characteristic was revealed in the audio interviews when teachers responded to certain segments of the tapes. One teacher in the experimental classes stated that she was aware of what was going on in the room by relying on the noise level, because visually she was unable to see all areas of the room. The teacher of another experimental class indicated that when she distinguished a particular voice, the noise level was too high. Interestingly, her class appeared to have higher noise register than the other experimental classes, although these two teachers used the same criterion (noise) as a signal for checking pupil behaviour.

Because the appropriate behaviour for classes is determined by the individuals within the class, statistical comparisons are difficult.

Discussed in subproblem 9, p. 139 ff. of this text is the cross age interaction of children from the experimental group involved

in free play. The observations of that research lend credence to the belief that the children in the experimental group have a more highly task oriented, helping social maturity than do the children observed in the experimental-control and control groups. Therefore, the null hypothesis that there is no difference in the social maturity of the children in vertically grouped classes from the social maturity of children in horizontally grouped classes is rejected.

It is hypothesized that the social maturity of children, as meaning the degree of socialization at any point in time is influenced by the class structure and class functions as well as the characteristics of the teacher. It is believed, however, that vertically grouped classes present a greater opportunity for children to develop acceptable behaviour because of the influence of older children on the younger and the opportunities for the younger children to observe and emulate more mature patterns of behaviour.

Subproblem Five: Emotional Security of Children

Purpose. The hypothesis for this study is that there is no difference in the emotional security of children in vertically grouped classes from the emotional security of children in horizontally grouped classes.

Emotional security of children was examined through their attitudes toward their teachers and mothers as demonstrated from sentence completion activities and their drawings.

The methods of the investigation are described on p. 66 ff. of this report.

Results. The data from the sentence completion activities of this research suggest that the experimental group has a more consistently positive attitude to mothers and teachers than do either the experimantal-control or control group. The results were statistically significant ($p < .05$) in the area of children's attitudes to teachers. Table 13 presents the relationship between child and teacher. Similarly without being statistically significant, there is a difference between the experimental-control and experimental group with the latter exhibiting a higher proportion of positive responses toward teacher, higher degree of consistency between mother and teacher and a lower proportion shifting negative attitudes from mother to teacher.

Table 13

Sentence Completion Test: Total Teacher-Child Responses N = 82

Group	Ex		Ex-C		C	
Responses	f	%	f	%	f	%
Positive	150	62	117	58.5	214	56
Neutral	21	9	25	12.5	60	16
Negative	69	29	58	29	106	28
Totals	240	100	200	100	380	100
chi-square	1.7562					
chi-square	6.5717*					
chi-square	1.1334					

* $p < .05$

Data presented in Tables 13 and 14 suggests that the experimental group has a slightly more positive attitude to teachers with fewer expressions of indifference than either the experimental-control or the control group. Further, the data (Table 15) suggests they have greater consistency in the mutual warmth and respect of teachers as shown by the proportion of consistently equal responses. Data for this research are contained in Appendix E, p. 211 ff.

Table 14

Sentence Completion Test: Total Mother-Child Responses N = 82

Group	Ex		Ex-C		C	
Responses	f	%	f	%	f	%
Positive	147	61	125	62.5	227	60
Neutral	24	10	24	12	54	14
Negative	69	29	51	25.5	99	26
Totals	240	100	200	100	380	100
chi-square	0.8603					
chi-square	2.5242					
chi-square	.06573					

Table 15

Total Responses Grouped for Consistency and Inconsistency of Mother-and-Teacher Attitudes N = 82

Group		Ex		Ex-C		C	
Direction of Shift		f	%	f	%	f	%
Consistent	00 11 22	204	85	166	83	306	81
Positive Shift Mother to Teacher	02 10 12	19	8	13	6.5	32	8
Negative shift Mother to Teacher	21 01 20	17	7	21	10.5	42	11
Totals		240	100	200	100	380	100
chi-square		1.8313					
chi-square		2.839					
chi-square				0.7594			

Discussion. This technique provided data so that the trends of emotional reactions of children to their mothers and their teachers might be analysed. In interpreting these results it is assumed that young children have a close and highly personalized relationship with their mothers, and that when they go to school their expectations are that the teacher becomes the mother-figure in a similarly close and personalized relationship. On many occasions teachers of young

children are addressed by "Mum", and often mothers are addressed by the name of the child's teacher.

This shifting of the child's relationship from mother to teacher suggests that the emotional security of the child will be reflected in the expressions of the warmth of the relationship or the attitudes toward teachers harboured subconsciouly by the child. The projective technique of this research therefore should reveal what differences there might be between the emotional security of the children in the various classes of the research.

It is assumed that most children have an equally warm positive attitude toward both their mothers and teachers. This assumption appears to be reflected in the responses to those items that deal with situations of intimate relationships between children and adults e.g. reading, recreation and crisis experiences. In the area of a child's misbehaviour an equal degree of negative perception is shown to both mother and teacher. This suggests that even though the teachers present a warmth of relatioship there is a characteristic of authority which is not resented by children who look to the adult for this learning.

There is also a suggestion that the differences in the emotional security of children as revealed from this research may be attributable to the longer period of time spent with the same children and teachers. Caution is expressed in accepting such a conclusion because of the small size of the sample, the age of the children and the nature of the instrument.

Table 16 shows the frequencies of the order of execution of

the drawings. Proportionately more children in the experimental group made the teacher drawing before the mother drawing than in either the experimental-control or the control groups, but the difference was not statistically significant.

Table 16

Observed Frequencies of Order of Execution of Two Drawings All Children N = 78

Group	Ex		Ex-C		C	
Order of drawing	f	%	f	%	f	%
Teacher first	3	12	2	11	3	9
Mother first	22	88	16	89	32	91
Total	25	100	18	100	35	100
chi-square	0.0075					
chi-square	0.1980					
chi-square			0.8055			

Table 17 records the frequencies of activities depicted in the teacher drawings. Chi square was used in analyzing the data and the experimental group was found to be significantly different from the experimental-control group at the two percent level of confidence and the control group at the one percent level. The experimental-control group was found to have no significant difference from the control group.

Table 17

Observed Frequencies of Activities
Depicted in Teacher Drawings N = 78

Group	Ex		Ex-C		C	
Activities	f	%	f	%	f	%
Formal in classroom	11	44	15	83	23	66
Informal in classroom	6	24	3	17	12	34
Informal out of doors	8	32	0	0	0	0
Total	25	100	18	100	35	100
chi-square	8.7168****					
chi-square	12.9494**					
chi-square	1.8113					

** p < .01

**** p < .02

The children in the experimental group depicted more informal activities in the classroom and out of doors than did either of the other research groups. The experimental-control and control groups depicted more formal classroom activities than informal activities. All the mother drawings showed intimate home life in a variety of informal domestic and recreational activities.

Table 18 records data from comparisons of the size (length) of the mother and teacher figures in the drawing. Chi square analysis reveal no significant differences, but the difference between the experimental group and control group approached significance at the five percent level of confidence. No statistically significant differences were found in the comparison of the size (length) of the

child in the teacher drawings and those in the mother drawings . Table 19 contains these data.

Table 18

Comparisons of Mother and Teacher in Size (Length) in Drawings N = 78

Group	Ex		Ex-C		C	
Size	f	%	f	%	f	%
Teacher less than mother	8	32	9	50	20	57
Teacher greater than mother	15	60	5	28	10	29
Teacher same as mother	2	8	4	22	5	14
Total	25	100	18	100	35	100
chi-square	4.7081					
chi-square			5.9280***			
chi-square					0.5509	

*** p approaching .05

Table 19

Comparisons of Child Size (Length) in Child/Teacher Drawing With Child/Mother Drawing N = 78

Group	Ex		Ex-C		C	
Size of child	f	%	f	%	f	%
Less in teacher than mother	9	36	8	44	20	57
More in teacher than mother	11	44	7	39	10	29
Child same in both	5	20	3	17	5	14
Total	25	100	18	100	35	100
chi-square	0.3141					
chi-square			2.6211			
chi-square					0.8036	

"Warmth of relationship" as judged co-operatively by two judges produced no significant differences among the groups. These data are found in Table 20.

Table 20

Comparison of Drawings for "Warmth of Relationship"
As Evaluated by Team of Judges N = 78

Warmth of relationship	Groups						
	Ex		Ex-C		C		
	f	%	f	%	f	%	Totals
1. Mother drawing warmer than teacher drawing	8	32	9	50	13	37.1	30
2. Teacher drawing warmer than mother drawing	6	24	4	22	11	31.4	21
3. Both pictures showing Similarity warmth	11	44	5	28	11	31.4	27
Totals	25	100	18	100	35	100	78
chi-square	1.611						
chi-square	1.064						
chi-square	0.8793						

Discussion. Mycock (1966:88) cites Goodenough (1929a, 1959b), Lowenfeld (1939a, 1952b), Griffiths (1945), Wolf (1946), Alschuler and Hattwick (1947), Buhler et al (1952) as her references to assert that the drawings of young children reflect or externalize the feelings and ideas of the producer, that children perceive things by assimilating them into their personality, and that imagination and

reality are melded to form a homogeneity. The work of Goodenough is generally regarded as the foundation of the interpretation of the emotional expression of children in their drawing.

It is accepted that the execution of one set of drawings by children cannot be taken as a statement of the children's fixed emotional state. As in many aspects of child development, there is a continuity of development with shifts backwards and forwards from any fixed norm. The interpretation of these expressions of children's emotional security are at best superficial, since continuing observation and data collection would be more meaningful.

In this context, it is important to draw conclusions with utmost caution. It is possible to indicate certain trends only in the drawings of the research groups and to put forward tentative explanations.

The following trends are suggested in the research:

1. All children depicted themselves as smaller than the adult figure.

2. In the experimental-control and control groups there was evidence of a more formal association with the teacher than in the experimental group (Table 17).

3. In the experimental group the teacher figure was taller than the mother figure (Table 18). This might be interpreted to mean that these children perceive the teacher to be a more authoritarian and dominating person. It might represent a feeling of respect and "hero" role in the eyes of the children.

4. In the experimental group the children most often depicted themselves as larger in the teacher drawings than in the mother drawings. This was the converse of both the experimental-control and control groups. If one assumes that size of the producer's image reflects the feeling of worth, as many teachers believe, the children in the experimental group express a greater feeling of self worth, and feel "good" about their relationship with their teacher even though they represent the teacher as a more dominant person than the mother figures.

A plausible hypothesis in explanation of these recurring tendencies and characteristics is that the drawings suggest a more intimate informal relationship in the experimental group. This hypothesis is supported by the team of judges in evaluating the direction of the "warmth of relationship" in complete drawings. The interpretation of projective self-expression must be considered with extreme caution since such self-expression is likely to contain unique personal features and reflect the intimate personal history of the individual.

In so far as this single set of drawings can be regarded as indicative of the true projection of feeling of the children concerned, it suggests support for the hypothesis that a lengthened period of association with one teacher makes for a closer and therefore better teacher-child relationship.

At the same time, evidence suggests that the degree of formality in the relationship can influence the feelings of children as expressed in their drawings.

From the data collected in these two projective techniques (sentence completion and drawing) it appears that there are slight differences in the emotional security of children as expressed in their responses and drawings. With the significance of the difference ($p < .05$) of children's attitudes to teachers; activities depicted in their drawings ($p < .01$); and the comparative size of mother and teacher (p approaching .05), the null hypothesis is rejected. There appears to be slightly greater emotional security in vertically grouped classes than in horizontally grouped classes. This difference may be attributable to the wide age range of the children in vertically grouped classes.

Subproblem Six: Levels of Aspiration

Purpose. The hypothesis for this study is that there are no differences in levels of aspiration of children drawn from three different age levels in Schools A and B.

A full description of the procedure for this test is found on p. 69 ff. Data for this section appear in Appendix F, p. 217 ff.

Results. Tables 21 and 22 report the mean attainments of the subjects in the experimental group and selected children in Grades P, one and two of School B. The control group out performed both the experimental-control and the experimental group in the attainment of the task. This difference was significant at the five percent level for the control and experimental group and approached the one percent level of confidence over the experimental-control group.

Table 21

Mean Attainment Scores
All Trials by Third Year Children N = 82

Group	Ex	Ex-C	C
m	11.482	11.46	12.616
SD	0.784	0.458	0.498
t	0.048		
t	2.439*		
t		3.412**	

* p < .05

** p < .01

Table 22

Mean Attainment Scores
All Trials First and Second Year Children N = 23

School	A			B		
	first	second	T	first	second	T
m	9.36	10.965	10.163	11.699	10.597	11.148
SD	0.624	0.693	1.038	0.878	0.27	0.851

first year t = 4.340** (p < .01)

second year t = 0.991

composite t = 2.201* (p < .05)

For both the first and second year children in this research there was a significant difference in favor of the control school over the experimental group at the five percent level of confidence which was created by a significant difference (p <.01) for the first year children with no difference for the second year children. Tables 23

and 24 report the differences in the attainment of children and their estimates or goals for the three age groups. There were no significant differences, but it is noted that the mean discrepancy for the experimental third year children is positive while for the experimental-control and control groups it is a negative discrepancy; that is, the experimental group set their estimates below their attainment levels while the other groups estimated goals beyond their performance levels.

Table 23

Mean Discrepancies Between Goal and Attainment
Third Year Children N = 82

Group	Ex	Ex-C	C
n	24	20	38
m	0.1575	-0.4	-0.141
SD	0.474	0.620	0.519

t = 1.236

t= 0.735

t = 0.554

Table 24

Mean Discrepancies Between Goal and Attainment
First and Second Year Children N = 23

School	A			B		
	first	second	T	first	second	T
m	-0.20	-0.416	-0.113	-2.2916	-0.375	-1.333
SD	1.536	1.457	1.495	4.79	2.705	3.98
n	5	6	11	6	6	12

Total t = 1.889*** (p approaching .05)

First year t = 1.843

Second year t = 0.520

The first and second year children estimated goals beyond their level of attainment for both the experimental group and children in the control school, School B.

Tables 25 and 26 report the frequencies of shifts among the various age levels of children in the experimental group and the control school. The type and direction of shifts of goals from each attainment reflects a statistically significant difference at the five percent level of confidence for the experimental-control group over the experimental group with no significance in the difference between either the experimental and control nor the experimental-control and control groups. The combined results of the first and second year children reflects a difference approaching significance at the five percent level of confidence. This difference reflects a larger proportion of the children in the control school making continuing upward shifts in goal setting, while the experimental group presents a

larger proportion leaving their goals at their attainment level.

Table 25

Shifts in Goals
Third Year Children N = 82

Group	Ex	Ex-c	C
N	24	20	38
upwards	34	37	54
0	39	36	76
downwards	23	7	22
T	96	80	152
chi-square	7.394*		
chi-square	4.033		
chi-square		3.1809	

* $p < .05$

Table 26

Shifts in Goals
First and Second Year Children N = 23

Group	Ex Gp. n = 11	School B n = 23
upwards	16	26
0	18	9
downwards	10	13
T	44	48

chi-square = 5.616

Discussion. Although differences between the groups is not great, there are trends that may suggest an interpretation of how the children function in the various school oganizations. Mycock (1966: 116-119) cites Lewin, Dembo and Sears in Hunt (1944) who argue that success and failure are "highly significant motivational factors" in an individual's goal setting scheme. She discusses two techniques with which a child can meet failure: (1) by setting lower goals (negative goal discrepancy) or (2) gaining substitute gratification by attempting higher goals (high positive goal discrepancy). From this study it may be hypothesized that the latter is the case for the first and second year children in all groups and the third year children in the control school. The experimental group met success in reaching their goals and therefore opted for maintenance of their goal or a greater downward shift than found in the experimental-control or control groups. The greatest mean negative discrepancy was found for the experimental-control group in which also was found the highest shift upwards of goal setting.

The experimental group may reflect a classroom climate which offers opportunities of success, in itself a motivational factor, and these children, therefore, need not look to "gaining of substitute gratification through attempts to get rewards for efforts by placing the level of aspiration high", even with continuing failure.

This research does not support the null hypothesis that there is no difference in levels of aspiration. Former research has used levels of aspiration as a motivational factor, but has not adequately

dealt with the quality of aspiration nor the influences of classroom climate on levels of aspiration.

Learning Milieu

Subproblem Seven: Workload of Teachers

Purpose. For this study the hypothesis is that there is no difference in the workload of teachers in vertically grouped classes from the workload of teachers in horizontally grouped classes.

The method of this research is described on p. 71 f. of this report. Data for the research appears in Appendix G, p. 227 ff.

Results. The time teachers spent in activities related to teaching are recorded in Table 27. Total times recorded by teachers were different for the three types of classroom organization. The teacher of the experimental-control group indicated that she spent a total of 1571.5 minutes per week, while the teachers of the classes of the experimental group spent an average of 1463.68 minutes and the teachers of the classes of the control group, an average of 894.5 minutes per week.

In the activities related directly to daily instruction (planning, preparation and evaluation) the teachers of the experimental classes spent an average of 549.67 minutes per week, while the teacher of the experimental-control group spent 407.5 minutes per week, and teachers of the control classes spent an average of 282 minutes per week.

Table 27

Teacher Activities Expressed in Minutes/Week/Teacher
Divided by In School Time and After School Time

Group	Ex			Ex-C			C		
Act	in	out	T	in	out	T	in	out	T
Plan	4.13	137.5	218.66		167.5	167.5		106.75	106.75
Prep	13.34	144.33	157.67	42.5	105.0	147.5	45.5	28.0	73.5
E.	1.67	171.67	173.34	32.5	60.0	92.5	68.75	32.5	101.75
RR.	10.83	386.84	397.67	20.0	417.5	437.5	60.0	175.25	235.25
M.	5.00	219.7	224.17		36.0	36.0		27.5	27.5
Sup.	2.5	40.0	42.5	170.0	128.0	298.0	173.75	93.75	267.5
PD.	210.0		210.0		270.0	270.0	2.5	20.75	23.25
O	1.67	138.0	139.67	20.0	102.5	122.5	1.25	58.0	59.25
T.	249.14	1237.51	1463.68	285.	1286.5	1571.5	351.75	542.5	894.25
n	25			20			38		
PU	9.97	49.5	58.55	14.25	64.33	78.58	9.26	14.28	23.53

Legend: Act - Activity Plan - Planning
Prep - Preparation E. - Evaluation
RR. - Record keeping and reporting
M. - Meetings Sup - Supervision
PD - Professional Development O. - Other
T. - Total PU - Pupil unit

On a per pupil basis, this represented 21.99, 20.38 and 7.42 minutes per pupil per week for the respective classes. The time study (Table 27) reveals that for record keeping and reporting, the teachers of the experimental and experimental-control classes spent

proportionately more time in this activity than did the teachers of the control classes.

A further difference was discovered in the time in which the activity took place. More time was spent by the teachers of the control group classes during school time to pursue these activities than by the teachers of either the experimental or experimental-control groups.

Discussion. In studying the activities of teachers there are two general categories of time involvement: those that relate directly to teaching (planning, preparation, evaluation and reporting); and those that relate indirectly to teaching (meetings, supervision, professional development and other activities). In the latter category, the activities can be further divided as those that are voluntary by teachers (some aspects of professional development) and those that are mandatory (meetings, supervision). These activities generally reflect the administration of the school and its principal, while professional development is either voluntary (professional reading and formal courses), or required (in-service training during school time).

Because the activities just described may characterize the personal qualities of teachers and/or the administrative orientation of the school, the investigator believed them to be less relevant to the present hypothesis than are the activities identified in the instructional segment above. The discussion of the workload of teachers will concentrate on the planning, preparation, evaluation and record keeping carried out by teachers.

The data reflect the general orientation of the methodology and class organization of the various groups under investigation. The time spent in instructional activities appear to be inversely proportionate to the number of groups under instruction. The greater the variety of groups within the class, the greater will be the time needed to plan, prepare, evaluate, record and report the growth of children. The vertically grouped classes and the experimental-control class (characterized as an informal classroom) of necessity required the teachers to prepare a greater variety of activities than did the conventional single group classes. Further, the range of the developmental levels of the vertically grouped classes (multiple ages) necessitated that an even greater variety of activities be provided (Fisher, 1972:103-104). This variety of activity was observed in video tape records of activities in the classrooms. It is particularly true in the number of subject areas and small group planning that was found in the data. Careful study of the variety of activities suggests that the planning, preparation and evaluation are the areas in which the teachers of the experimental group spent proportionately more time than the teachers of the other classes. The teacher of the experimental-control class recorded a greater time spent in record keeping and writing reports, which suggests that on a day to day basis, the teachers of the vertically grouped classes have a heavier work load than teachers in the control classes.

The present research rejects the null hypothesis for this subproblem. Teachers in vertically grouped classes have a heavier workload than do teachers of a conventional horizontally grouped

class. Because the teacher of the experimental-control group had time involvement similar to the experimental group, it is proposed that it is not the age range that is the cause, but rather, the class structure; i.e., grouping practices.

Subproblem 8: Social Structure of the Classes

Purpose. For this study the hypothesis is that there is no difference in (a) the social structure or (b) the classroom climate of vertically grouped classes from the social structure and classroom climate of horizontally grouped classes.

The methods of this research are described on p. 73 ff. of this report. Full data of the research are recorded in Appendix H, p. 242 ff.

Results: a. Social Structure. Presenting and interpreting the results of sociometric techniques are complicated and difficult. The investigator adapted the sociograph to represent the results and found this technique more easily interpreted than sociometrices of the data.

Visual inspection of the sociographs (Figures 1, 2, 3, 4, 5, 6) presents distinctly different class characteristics. The control classes (class 1 and 2, Figures 1, 2) present a situation of small group or "clique" behaviour with a few stars at the centre of the groups. The groups are segregated by sex and show group within group structures.

In control class #1 three students drew 50% of all selections

while in control class #2 three students drew 44% of all selections.

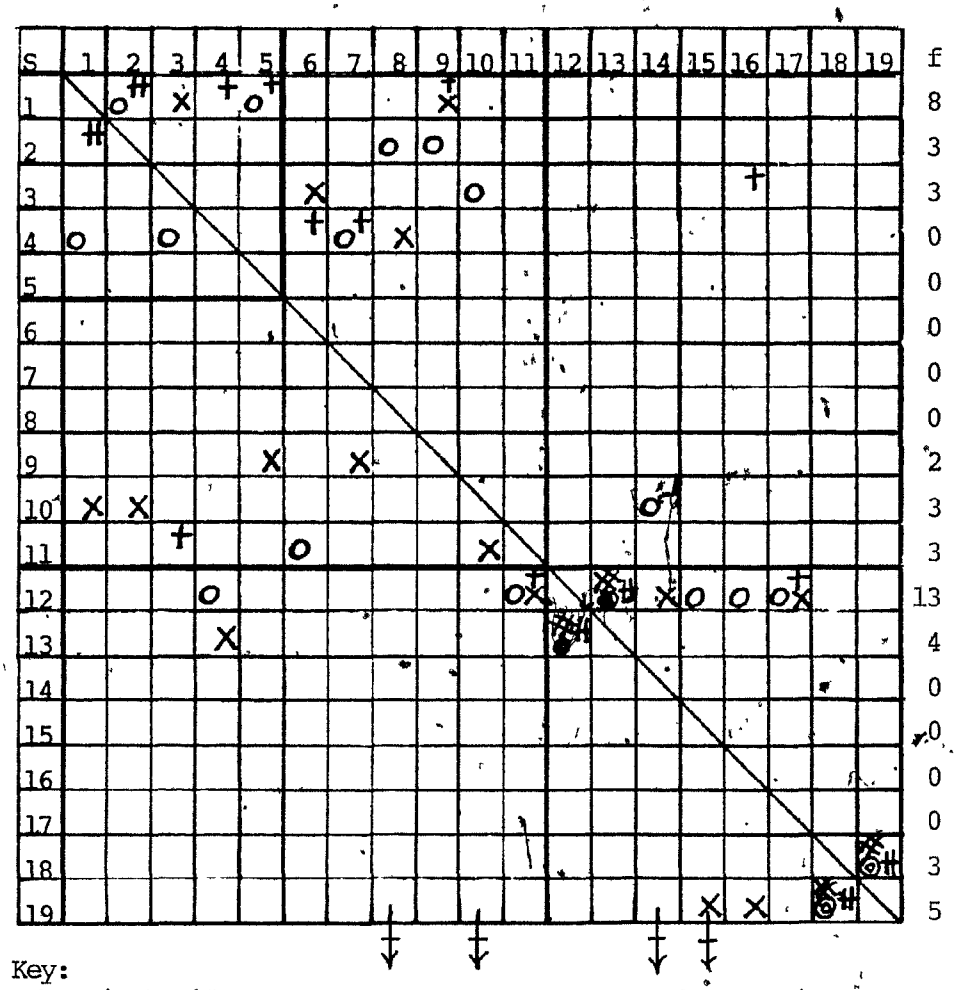
A similar pattern of small group clique interaction is found in the experimental-control group (figure 3). In this instance, involving a very small class (19 children), there are three basic groups, two of boys and one of girls. In this case four children had no selections in any question. Again there are two subgroups within each of the basic groups. These differences are not statistically significant. Data of frequencies of selection are contained in Appendix H, p. 242.

The experimental groups (figures 4, 5 and 6) also present group structures with subgroups. In the case of the experimental groups, there are subgroups within the basic grouping. The grouping is by sex rather than age.

In the experimental class #1 (figure 4) there are mutual selections which are across age groups, but by sex. This is found also in experimental class #2 (figure 5), but not in experimental class #3 (figure 6) where there are more selections of children in other classes for play outside the class. This again is outside the age pattern but of the same sex.

Figure 1

Sociograph of Control Class No. 1

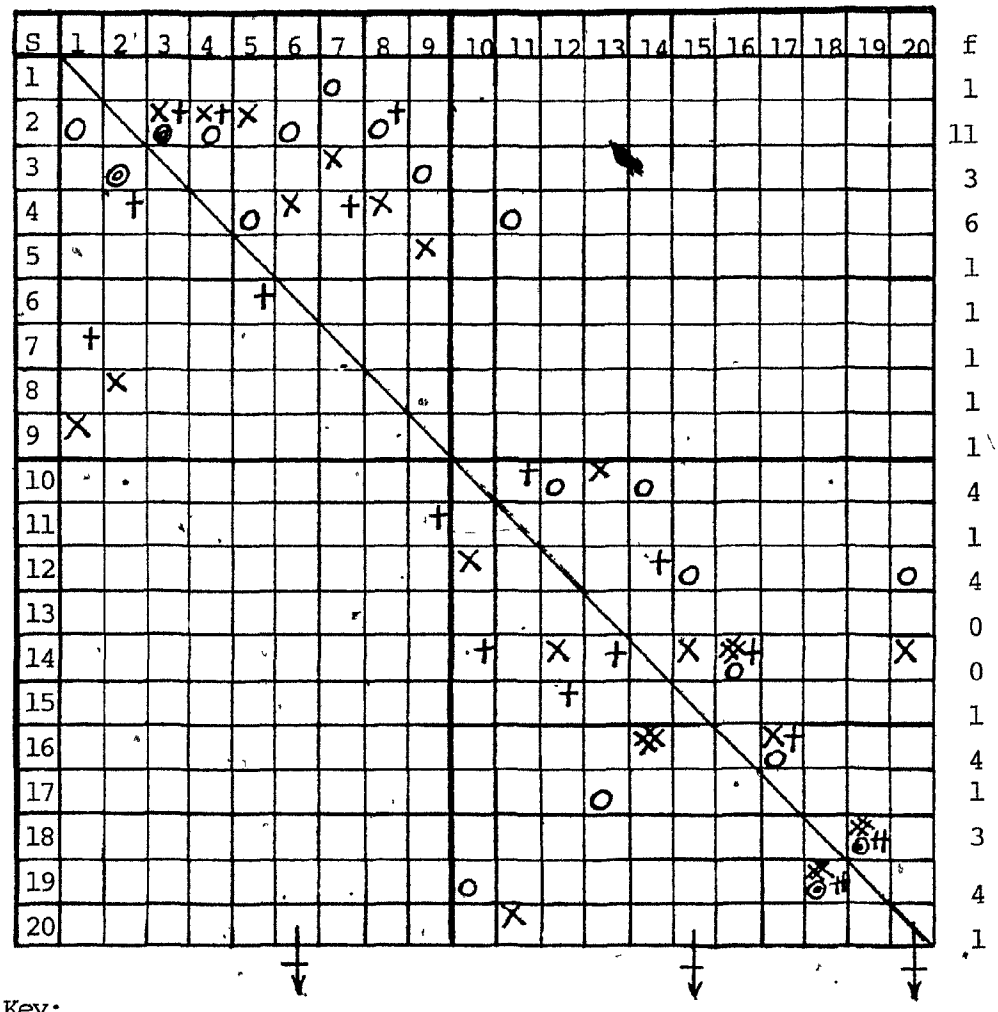


Key:

O	sit beside	◎	mutual selection
X	work with	⊛	mutual selection
+	out door play	‡	mutual selection
↓	student outside class	s	student
f	number of selections		

Figure 2

Sociograph of Control Class No. 2

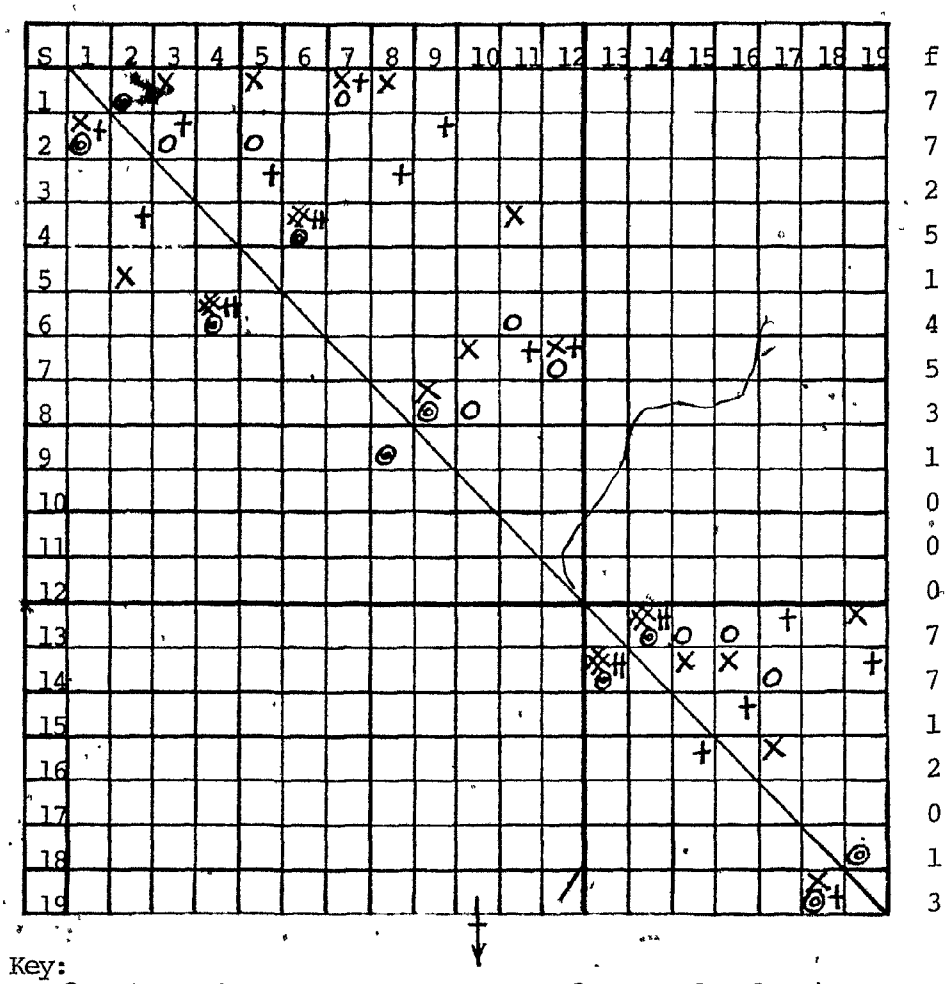


Key:

O	sit beside	◎	mutual selection
X	work with	※	mutual selection
+	out door play	‡	mutual selection
↓	student outside class	s	student
f	number of selections		

Figure 3

Sociograph of Experimental Control Class

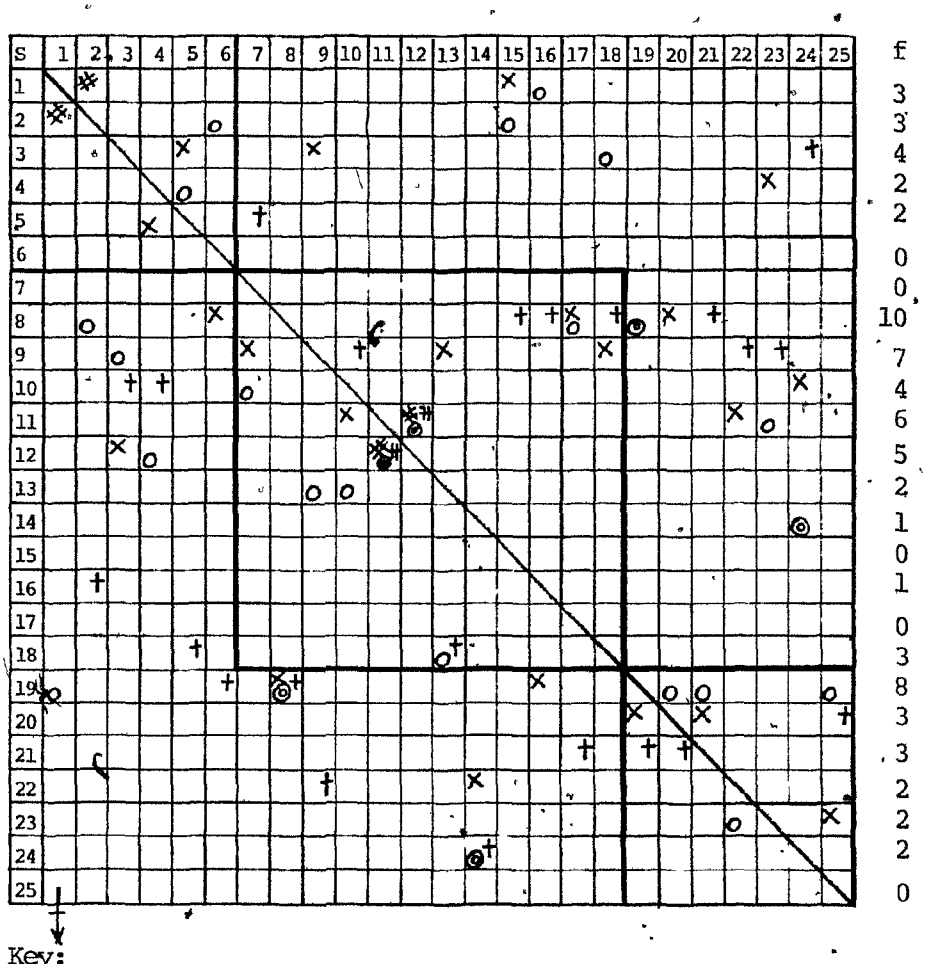


Key:

⊙	sit beside	⊙	mutual selection
×	work with	⋇	mutual selection
+	out door play	‡	mutual selection
↓	student outside class	s	student
f	number of selections		

Figure 4

Sociograph of Experimental Class No. 1



Key:

o sit beside

× work with

† out door play

student outside class

f number of selections

mutual selection

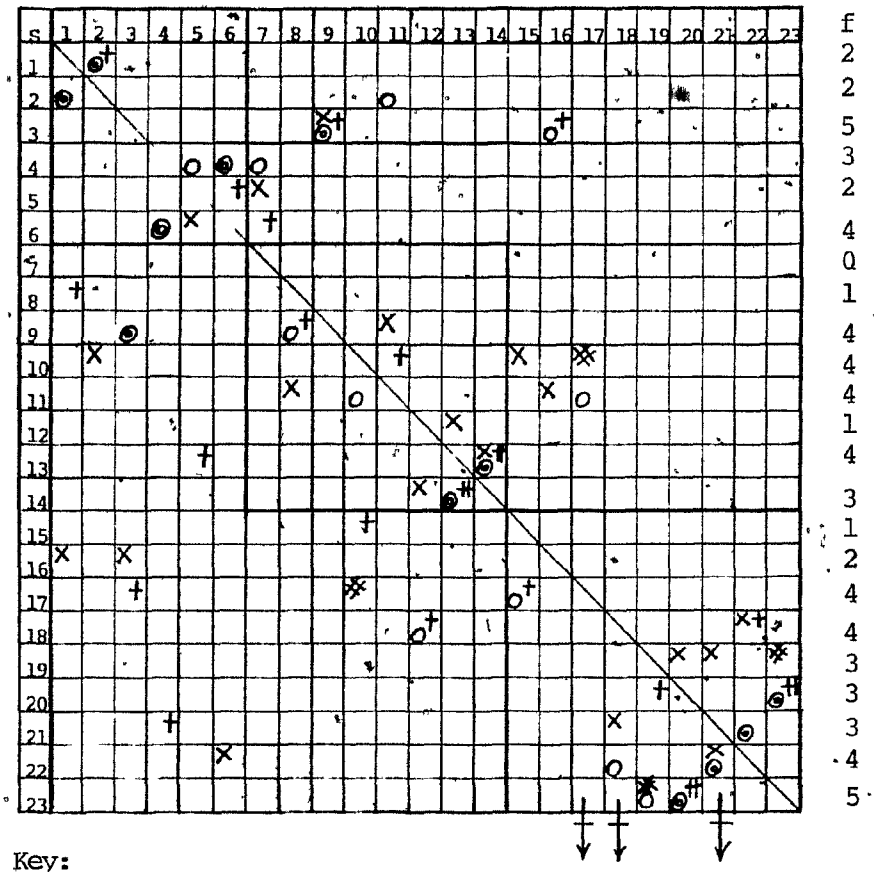
mutual selection

mutual selection

s student

Figure 5

Sociograph of Experimental Class No. 2



Key:

O sit beside

X work with

out door play

student outside class

f number of selections

mutual selection

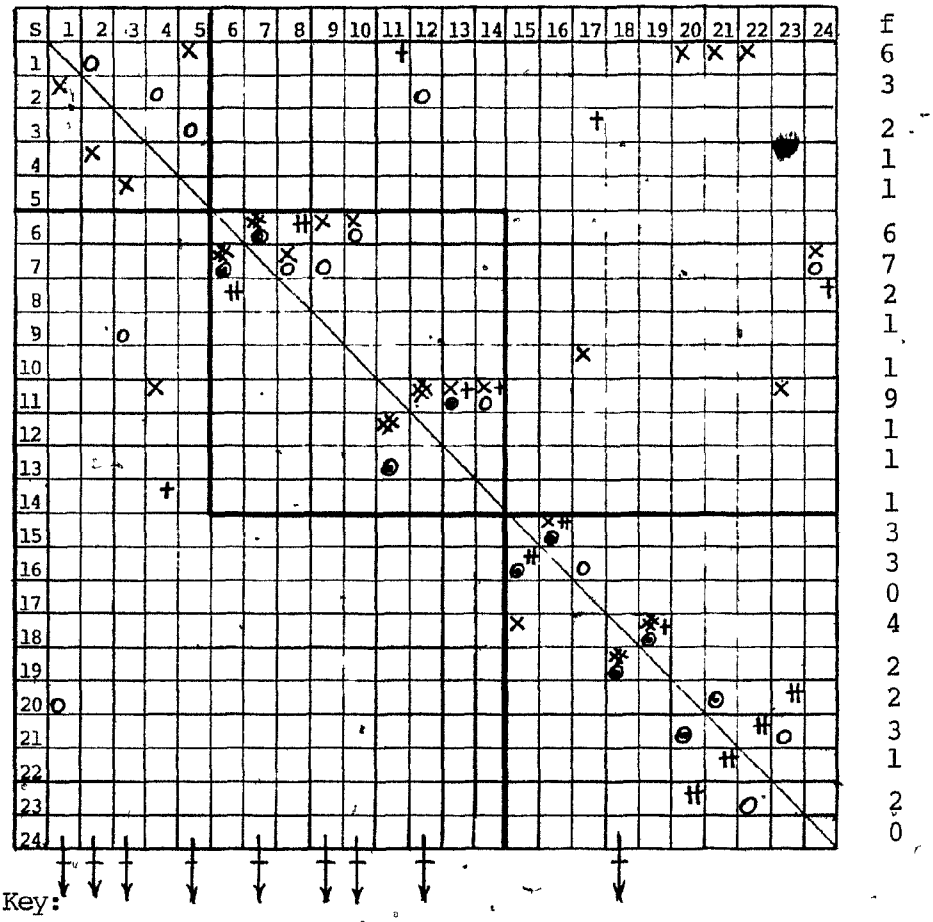
mutual selection

mutual selection

s student

Figure 6

Sociograph of Experimental Class No. 3



Discussion: a. Social Structure. The sociometric technique of J.L.Moreno (1934) has been used as the basis of this research as it has by many researchers over the years. The present study used the three question technique to identify preferences of children in the sample to attempt to determine the social interactions among children. The use of rejection questions used by some researchers was rejected by the investigator because it was felt to be an unreliable means to study the interactions of young children. It is generally accepted that the likes and dislikes of young children fluctuate and, therefore, rejection questions, because they stressed a negative attitude, were deemed unacceptable.

It is accepted for the purposes of this study that children's responses and preferences for friendships are momentary and of a short duration and might not reflect the preferences of these children a week, month or year in the future. Immediate past experiences will influence the expression of feelings. The spot study, however, should reflect general trends that are distinguishable among the children of the research groups.

By inspection of the selections made by the children in the control group and experimental-control group classes, it appears that these are highly socially competitive children with limited acceptance of children by the stars as noted by the mutual selections in the subgroups.

In the case of the experimental groups, when children are not assigned to specific instructional groups nor for specific assignments they are free to seek and work with other children in their class. It

was questioned whether children would form their own groups based on preference or whether they would interact with children to whose group they were assigned. Observation of classroom activity through video tape revealed free interaction across the age grouping. Stimulated recall of teacher, recorded by investigator, confirmed these selections.

The sociographs of these three experimental classes present a more diffused climate of social interactions than either the experimental-control or control classes.

Results: Classroom Climate. The classroom climate was determined by the test, My Class ,(Anderson 1971). Complete data for this research are found in Appendix H, p. 148 ff. The present test assesses the perceptions of their classes by the children in the sample classes and is an indicator of the learning environment of those classes. Table 28 reports the data for this test.

Table 28

Mean Scores for My Class N = 129

Group	Ex	Ex-C	C
Factor 1 m	23.08	24.16	22.26
Satisfaction SD	3.17	3.26	4.62
	t = 1.076		
		t = 0.77	
			t = 1.581
Factor 2 m	16.16	19.16	18.72
Friction SD	4.81	4.75	4.94
	t = 2.010***		
		t = 0.096	
			t = 0.32
Factor 3 m	19.72	20.95	21.21
Competitiveness SD	3.29	3.05	3.57
	t = 1.234		
		t = 1.645	
			t = 0.265
Factor 4 m	17.96	17.315	15.153
Difficulty SD	4.08	4.46	3.46
	t = 0.486		
		t = 2.90**	
			t = 1.989***
Factor 5 m	24.04	23.79	23.41
Cohesiveness SD	2.42	2.40	3.54
	t = 0.333		
		t = 0.767	
			t = 0.415
Total m	100.96	105.32	100.74
SD	8.45	8.92	8.69
	t = 1.6147		
		t = 0.0966	
			t = 1.832**

** p < .01
*** p approaching .05

Factor 1 assesses the satisfaction children express with their class. In this study the class means suggest that the experimental-control class had the highest level of satisfaction followed by the experimental group and then the control group The differences between the groups were not statistically significant.

Factor 2 assesses friction levels within the respective

classes. The data suggest that there were higher levels of friction in the experimental-control and control groups than was found in the experimental group. These differences approached significance at the five percent level of confidence between the experimental and the experimental-control group.

Factor 3 measures competitiveness within the classes. The experimental group demonstrated lower levels of competitiveness than either the experimental-control or control classes. The differences were not statistically significant.

Factor 4 measures difficulty of work in a child's class. The present study found at the one percent level of confidence significantly higher levels of difficulty between the experimental and control classes; and differences approaching significance at the five percent level of confidence between the experimental-control and control classes. No significance was found between the experimental and experimental-control classes.

Factor 5 measures the cohesiveness of the class grouping. Although the test means are higher in the experimental classes than in the two other research groups, it is not statistically significant.

Discussion: b. Classroom Climate. The relationship of friction and learning is likely manifested in two, if not more, ways. First, if energies are expended in conflict, over time the learning would suffer. Second, conflict creates problems in classroom control, thus thus impeding learning because of distraction. The exception to this appears to be in the area of high concept comprehension and

demonstrated creativity (Anderson, 1971). It is a reasonable assumption that the influence of friction as an enhancer of learning (e.g. in mathematics) would be manifested at older levels than in the primary division of an elementary school. In the present study, it is possible that the differences in the mathematical achievement found in subproblem #1 (p. 84) are related to the differences in levels of friction found in this research.

In the case of friction within the classes it has been found that friction is greater in classes where there are large numbers of boys (Anderson, 1971). The experimental-control class presents this variable and has also the highest level of friction. The differences between the experimental-control and experimental groups may also be attributable to the wide age range in the vertically grouped classes. The causal relationship is not determined in the present research. Hypotheses only may be developed.

Competitiveness appears lower in the experimental group than in the other two groups which appears to be reflected in the sociographs of this research. It can be hypothesized that this lower competitiveness is influenced by the cross age grouping, since the children do not have the same need to compete with their age peers.

Difficulty of work, Anderson (1971:18-19) asserts, is inversely related to the size of the class and relates positively to cognitive learning. It would appear from this study that the organizational pattern and teacher methodology might have an influence on this factor. The informal approaches of the experimental and experimental-control groups may indeed increase the level of

difficulty perceived by children. The actual numbers of children in the class may also influence the relationships. In the control classes the general grouping is a single class unit as was found in classroom observations, while in the experimental-control class there were smaller instructional groups functioning. In the experimental groups the grouping for instruction was generally on an age peer basis, but had even smaller numbers of their age peers in these groups. Children may perceive their instructional group as their "class"; in which case, the inverse relationship between the size of class and difficulty of work is found.

Considering the results of My Class inventory in relation to the sociographs of the sociometric study; the cohesiveness of the classes, friction within the classes, the competitiveness of the classes, and the satisfaction, appear to be reflected in the sociographs of the respective classes. Those classes that demonstrated high levels of friction, those that present higher levels of competitiveness and lower levels of cohesiveness present a sociograph of more group and subgroup orientation with isolates functioning on the fringes of the groups.

The results are not conclusively attributable to the vertically grouped classes, but the null hypothesis is rejected in this study.

Subproblem Nine: Cross-Age Interactions

Purpose. The purpose of this research was to investigate the hypothesis that there is no difference between the cross-age

interactions of children in vertically grouped classes from the interactions as expected by chance. The method of this research is described on p. 75 f. of this report.

Results. The data, reported in Table 29, exhibit highly significant differences between the observed frequencies of interactions from those interactions expected by chance ($p < .001$).

Table 29

Cross-age Interactions First, Second Third Year Students
Experimental Group

Age	5				6		7		T
	0	soc	anti-s	sol	s	a-s	s	a-s	
5	6	30	7	48	34	2	46	7	180
6	6	26	7	38	40	12	25	4	158
7	15	12	4	46	25	2	53	3	160
T	27	68	18	132	99	16	124	14	498

soc social, anti-s anti-social,
sol solitary 0 children outside the study
chi-square 43.532 ($p < .001$)

A number of salient behaviours emerge from the findings of this research. All ages demonstrated their desire to be with older children. More first and third year students were observed in solitary activity than were second year children. The solitary activity in this research was of the type in which a child remained by himself either observing others or involved in a singular activity.

The first year children had a larger number of interactions than did the second or third year students. These children were observed in more play groups that formed and dispersed than were their older counterparts. The older children formed groups and remained involved for longer periods than did the younger children.

In this study, the selection of same age peers appears to increase with age. The youngest children selected the oldest more than the middle age group while that group selected the youngest more than the oldest group. The third year children selected the second year children more than the first year children. It appears that in this sample, children selected younger associations, while the youngest sought the oldest more than their next age group.

A phenomenon that is presented in the data is the inter-age behaviour of the second year children. They selected their own age more than other ages and were selected fewer times by first year children than were the third year children, who in turn selected second year children over first year children. Further, the greatest proportion of anti-social behaviours were demonstrated by second year children. These data appear in Table 29.

Discussion. Because of the large number of children in the control school (School B), and the physical expanse of the playing areas, the investigation of the interactions among children for comparative purposes, was conducted on the experimental group only. The observed frequencies were compared with expected frequencies to determine if the differences might be by chance.

From the observations of this study it was found that children do not limit their social interactions to age peers. In this research it is possible that the first year children looked to the third year children for security reasons as well as for leadership. For leadership experiences the oldest and the middle group may seek the younger children as their followers. These data suggest that the second year children may be seeking leadership roles and vie with the third year children for followers among the first year children. If this were the case, then the assertion that children have an opportunity to develop leadership qualities and also experience the follower paradigm in the vertically grouped classes holds for this research.

The low level of anti-social behaviours in this research (Table 29, 48 of 498, 10 percent of all interactions) reflects the same direction of the low-conflict score on the My Class Inventory of subproblem 8, p. 136.

The high proportion of social activities suggests that these children are adjusted to social play and are comfortable and secure with other age children demonstrating an acceptable level of socialization (c.f. p. 104).

This research rejects the null hypothesis that there is no difference in the cross-age interactions of children from the interactions than would be expected by chance with the age distrubution of this sample.

Subproblem 10: Flexibility of Class Organization

Purpose. The purpose of this study was to investigate the hypothesis that there is no difference in the flexibility in class organization between the vertically grouped classes and the horizontally grouped classes. The method of this research is described on p. 76 f.

Results. The study of school records, informal discussions, classroom visitations and observations through direct observation and video tapes present certain characteristics of classroom organization that prevailed in the classes of the research sample.

Accessibility of help for children was identified as one characteristic of flexibility of class organization. The frequencies of child-teacher interactions and child-child interactions, as found in Table 12 on page 101 of this text, indicate that in the experimental classes in the time sampling of three five minute segments there were 35 observations of children seeking help from other children and 20 observations of children seeking help from the teacher. The teacher offered individual help to children on nine occassions. Further, the teachers spent the majority of their time during the video recording circulating from one group to another checking work, evaluating, questioning and rewarding children with praise.

The 20 interactions of children seeking help from the teacher were usually while the teacher was interacting with other children, either individually or with a group. Similarly, the help sought from

other children was during an "on task" activity by the child whose help was being sought.

In the experimental-control class, the video tapes reveal one interaction of children helping other children and five observations of children seeking the teachers help. In this class as in the experimental classes, the help was sought while the teacher was interacting with individuals or groups.

In this class the teacher also spent the major part of her time moving from group to group, to monitor, question, check, evaluate and praise.

The control classes present a structure in which there were no helping interactions among children, 10 instances where children sought the help of the teacher and three observations where the teacher offered help to students. In one of the control classes, the function of the group structure was a unit with teacher introducing the activity and providing work sheets for seat work as a follow-up.

Grouping patterns was another characteristic of flexibility of class organization that was studied. It was found that in the experimental classes the major grouping was done on achievement levels and year in school; e.g., second year children were grouped together for some activities. This form of grouping held for reading, and mathematics. Exceptions to this were found in one class in reading, where one second year child was grouped with five first year children; one first year child was grouped with three second year children; while there was one group of four second year children; one group of seven third year children, and another group of two third year

children. This grouping pattern in reading was similar in the other experimental classes.

Within the groups, it was found that in one class the children worked on reading files prepared individually for them. In another there were different activities given to different children by the teacher.

In mathematics, the group structure changed, again with achievement level the major criterion for placement. This held true for the three classes.

From discussions with the teachers it was found that, for science and social studies a thematic unit structure was followed, with common presentation and a variety of activities selected to the developmental level of the children. Music was presented for one period per week to the whole class and for another session across classes with children of a similar age (grade).

In the experimental-control class group placement was made by achievement levels (the term ability level was used by the teacher). The class was divided into groups with a variety of activities in reading but similar activities presented in mathematics. As the children completed the tasks for one activity, they rotated to another. Activities were adapted to achievement levels in reading with common skills presented in all other areas.

In the control classes it was found (from the video tapes) that one child had a special programme in reading. From cummulative records it was found that some few children were using a remedial programme. In all other subjects a common programme was used for all

children. The video recordings supported these data.

"Multi-tasks" was used as another characteristic of flexibility of class organization. The observations in the classroom, and from the video tapes, as well as teachers' plan books, verify that in the experimental classes different tasks were presented to children to be pursued simultaneously; e.g., individual reading files, math activities, writing activities, painting activities. In some instances within the groups, children had to perform tasks different from other group members. The specific pattern of activity varied with the teachers and classes.

In the experimental-control class language arts activities varied with the group in level of development rather than subject area; i.e., the groups functioned simultaneously in a subject area. The time table of the teacher indicated set times for individual subjects.

In the control classes, a set time table was followed with a common lesson and common follow-up seat activity. The one exception was the child mentioned above.

Provision for individual learning styles was another characteristic of class flexibility. The researcher was seeking examples which would indicate that classroom organization accommodated the various preferences of children.

A teacher in the experimental class related a situation prompted by stimulated recall in viewing the video tapes. It was observed that a second year boy, when the group presentation was completed, took his worksheet and material and found an area by

himself. He continued to work isolated from the group during the ensuing work period. When questioned about the incident, the teacher related that some time prior to the taping, the boy had requested to work by himself. She allowed the request and he continued to perform in isolation of the group. The teacher in conversation with the mother found that the boy had complained to her that he couldn't work with the group. The mother suggested that he request the permission, which he did.

In the stimulated recall session with the child he was asked about his behaviour recorded on the tape. He related that he had found it hard to concentrate with the other children. When questioned whether he was distracted by the others while working alone, he confided "sometimes" but not often.

Another example was recorded on the video tape in another experimental class. During a period after a group of five second year girls had completed their work, they went to a corner of the room where a large poster of a child was hanging. One girl proceeded to role play the part of the teacher, pointed to different parts of the body of the child on the poster and requested answers from the other girls.

A second year boy who was watching from another area of the room was observed to go to a mirror that was placed on one of the room dividers. He stood in front of the mirror and inspected his eyebrows, eyelids and eyelashes. It appeared that he was checking his own anatomy for the body parts being discussed by the girls.

No observations of this nature were found in either the

experimental-control or control groups.

Discussion. The observations recorded in this research suggest that children respond to thought processes instantaneously as demonstrated by the boy's action with the mirror. Further, they sense the need for freedom of activity as demonstrated by the boy who requested an isolated area for work. In neither case can it be construed that these children demonstrate anti-social behaviour, since other segments of the video record present a social interaction of both boys with other children. The physical structure of the experimental classes provided the opportunity for these children to satisfy an immediate concern. It cannot be concluded, however, that vertical grouping accommodates these idiosyncracies. They could be satisfied equally as well in modal age grouping.

In conversation, Alice Yardley (1973), a former primary consultant in England, commented that vertical grouping is an "attitude". This perhaps is exemplified by these activities accepted by teachers as appropriate behaviour and those that were found in the other sections of this research.

If, indeed, children need immediate reinforcement in their learning, this researcher believes that it is demonstrated in this study that the flexibility of vertically grouped classes provides for that need. The very fact that the multi-age composition of the classes demands grouping for instruction, in a sense, forces an organization that is flexible to accommodate the various levels of developoment that would be found among these children.

The multi-task structure referred to by Hamilton (1983) was found in the experimental group but not to the same degree in the experimental-control group and not at all in the control group. Whether this structure is a result of vertical grouping or a prerequisite for vertical grouping is open for further study.

The accessibility to help, further supports the hypothesis that young children are very conscious of the moment, and therefore need immediate satisfaction in solving problems. This researcher questions whether this accessibility need be limited to a multi age class. It needs to be determined whether modal age classes would not equally satisfy such a need as the problem is inextricably related to classroom management and teaching styles and not singularly a result of classroom organization.

Thus, in this study the null hypothesis is rejected; that is, the experimental classes have a greater flexibility of classroom organization than do horizontally grouped classes. It has not been shown that this flexibility is a result of vertical grouping in school.

Subproblem 11: Retention of Children

Purpose. The purpose of this research was to test the hypothesis that there is no difference between the retention of children in vertically grouped classes from the retention of children in horizontally grouped classes. The method of the research is described on p.77 f.

Results. An inspection of school records for the years 1977-1980 revealed that there was little difference in the actual numbers of children retained in the two schools. The difference was not statistically significant. Table 30 contains the actual numbers of children who moved through grades primary, one and two in the regular time; 93 percent for the experimental group and 88.5 percent in the control school. In the control school, School B, three children were found to have been retained two additional years in the first three grades of schooling. These children, however, were not in the control classes.

Table 30

Retention of Children 1977-1980 Experimental Group and School B

	Retention						
School	0		1		2		
	f	%	f	%	f	%	N
EX	47	94	3	6	0	0	50
School B	131	88.5	14	9.5	3	2	148

chi-square 1.6617

Discussion. The schools used in this study both functioned under the same policy of promotion of the school authority. The policy suggests that retention of children in elementary schools should be the exception to the rule, and that no child should be required to spend more than one additional year in the primary division.

The school records revealed that there were retentions in both schools, but in the control school there were three children who had repeated both grade primary and grade one to be retained an additional two years in the primary division . This practice was not found in the experimental group where the children were retained no more than one year in the primary division. One child completed the work of the three years in two and advanced to grade 3.

Related to this practice, is the work presented children in the second year they are placed in that grade. The policy of the school board indicates that children should not be required to repeat skills already mastered. To determine the quality of the year retained, the school records were used to determine whether children were required to repeat the work of the previous year. The children who were retained an additional year in the vertically grouped classes all were presented with new material in reading, mathematics, science and social studies, while the children in the horizontally grouped classes "reviewed" the work of mathematics and were presented new material at the same level in reading, because the reading program used in the school was changed in the years in which the children were "repeating" the grade.

The investigator believes that the flexibility found in the vertically grouped clases accommodated the children who were retained the additional year because they were grouped with other children at their level of development for group instruction. In the horizontally grouped classes, the children worked with the class as a unit, particularly in mathematics, where grouping was not observed in either

videotapes nor from records.

From this research the null hypothesis is supported, but it is concluded that retention alone is not the crucial issue in helping children master skills in learning. Crucial to the issue is the quality of the instruction and material, and for children to progress at their individual rates, as espoused in the policy of promotion in the schools. They should not be required to repeat the skills already mastered, i.e., "repeat" the work of the grade.

Further, it is concluded that the attitudes and administration of an individual school influences the practices in the area of the promotion of children through the grades. Therefore, pupil placement or school organization do not in themselves influence the retention of children.

Subproblem Twelve: Reactions of Parents

Purpose. The purpose of this research was to ascertain the reactions of parents to vertically grouped classes. The feelings of parents were determined by administering an opinionnaire to a 25 percent random sample of parents of the children who were in the research sample. For the experimental group there was a 78 percent return and a 73 percent return for School B. N = 25. The method of the research is described on p.79 f.

Results. The questionnaires were processed and tabulated with individual mean scores for each of the thirteen items. Using the five point scale of five for highly agree and one for highly disagree,

a composite table was developed for the frequencies of the two groups of parents. The comparison by chi square of the frequencies of ratings between the two groups of parents was found to be significant at the .001 level of confidence. Table 31 contains the frequency distribution of the forced responses for the groups.

Table 31

Composite Frequencies for Parents Responses

Rating	Ex	C	T
5	29	11	40
4	120	83	203
3	17	10	27
2	12	35	47
1	0	3	3
Totals	178	142	320

chi-square = 27.331 ($p < .001$) N = 25

An inspection of the responses for the individual items of the questionnaire suggests that the parents of School B show the greatest disagreement on statement 13, the concern of teachers to children as individuals ($p < .01$). Another area in which the parents differed in favour of vertically grouped classes was in the acceptable emphasis placed on the social development of the child (question 11 $p < .05$). The third area of disagreement was on item seven, acceptability of discipline (approaching .05 level), where parents of children in vertically grouped classes felt discipline to be less of a problem

than parents of children in School B. Data of individual item analysis is contained in Table 32.

Table 32

Mean Scores by Item: Parent Questionnaire

Item		Ex	C	t
1	m	3.64	3.55	0.335
	SD	0.61	0.78	
2	m	4.07	3.64	1.682
	SD	0.59	0.64	
3	m	3.86	3.27	1.486
	SD	0.91	0.96	
4	m	3.93	3.18	1.793
	SD	0.88	1.11	
5	m	3.64	3.60	0.122
	SD	0.81	0.80	
6	m	4.00	3.73	1.017
	SD	0.65	0.62	
7	m	4.07	3.18	2.054***
	SD	0.80	1.26	
8	m	3.83	3.73	0.313
	SD	0.55	0.96	
9	m	3.77	3.18	1.272
	SD	0.80	1.33	
10	m	3.92	3.45	1.276
	SD	0.73	0.99	
11	m	4.07	3.55	2.262*
	SD	0.26	0.78	
12	m	4.07	3.82	0.608
	SD	0.96	1.02	
13	m	4.07	3.00	2.931**
	SD	0.59	1.13	

*p < .05
**p < .01
***p approaching .05

In Part B of the questionnaire distributed to parents of children in vertical grouping, results indicate that of those sampled, 43 percent (N = 14) had requested the placement of the child in vertical grouping. Of this sample, 79 percent indicated that they had not considered having the child removed from the organization. An

equal proportion indicated they had had no regrets in having the child placed in the classes.

Comments made by parents were varied. Those who indicated that they had considered having their child removed commented:

> in grade one there seemed to be a regressing rather than a progressing ...a more structured class would be more appropriate for our child.
>
> because I thought he might do better in the straight primary class.

Two of the three who considered having the child moved, however, indicated that they had no regrets that their child had attended vertically grouped classes.

Of the parents who expressed regret that their child had attended vertically grouped classes the comments were:

> although our child made up for this loss in a regular grade 2 program, we felt that his first two years were not too successful.
>
> certain problems tend to go unnoticed in vertically grouped classes: there might have been greater attention paid to the areas in which she was weak. In a straight class, therefore, it depends on the child; the brighter child seems to benefit although the "gifted" child sometimes becomes a teacher's aid [sic] and becomes bored with the situation.
>
> I feel C___ got behind in her reading due to her first years in school. In vertical grouping she did well in reading; when she entered grade 3 first term and thereafter she was in the lower reading class.

Further consultation with the school revealed that one of the parents quoted above had not attended one orientation meeting for parents. Conversely, the same parent agreed with all but two items on Part A.

Advantages listed by parents identified "greater opportunities for social development"; "the opportunity to work at individual

rates"; "security within one's peer group"; "behaviour modelling by older children"; "greater motivation from seeing the work children will be doing later"; "challenges"; "opportunity to do work designed for older children without the pressure of having to do so".

Disadvantages that were identified by parents included: "some situations go unnoticed"; "vertical grouping doesn't have a set amount of work to be done in a year"; "perhaps a greater structure would prepare children for more old fashioned drilling in later school years"; "distractions"; "a grade 2 student who may not be motivated can spend too much time helping younger classmates"; "difficult for child who is disorganized and needs reinforcement of routine"; "bullying can occur because of age differences". Five of the respondents indicated they could identify no disadvantages to vertically grouped classes.

Discussion. The general impression left from this research suggests that the parents of children in vertically grouped classes are generally satisfied with the development of their children in the organization. Some exceptions to this suggest that the information about the organization did not get to parents, as was found in the instance of the parent expressing regret that her child had been placed in the organization.

The retrospective judgements of parents suggest that the parents of children in vertically grouped classes had a better feeling about their school than did the parents of children who were in School B. This is especially true in the area of concern for the individual

child and the social development of children in the early years of school. Discipline which is characterized by appropriate behaviour is judged to be less of a problem in the vertically grouped classes than in conventional or horizontally grouped classes. Information to parents about educational practices in the school appear to be better in the vertically grouped classes than in the horizontally grouped school.

These observations cannot be construed to mean that vertical grouping is the cause of the opinions of the parents in the two school organizations. It does suggest that for vertical grouping to be successful, the school has a responsibility to maintain continuing communications with parents.

The degree of support expressed by the parents of the vertically grouped classes suggests that it is generally accepted as a viable school organization. Those parents who expressed regret that their children had been in vertical grouping, judge the organization of the classes to be the cause of low achievement or low motivation. This causal relationship cannot be established from this research.

Those teachers who have ventured into this class organization have consciously pursued a strong school to home communication which could account for the differences in the parents' understanding of what is going on in the schools. One questions whether vertical grouping results in better school home relationships or whether successful vertical grouping requires it. From this study it appears that parents have a very positive reaction to vertically grouped classes.

General Discussion

The results of this investigation suggest certain relationships that bear further comment. In the area of academic achievement, there appears to be an interrelatedness between the grouping of children across a wide age range, the flexibility of the classroom organization and the development of written expressive language. It can be hypothesized that these variables hasten the development of this learning. The informality of the vertical group organization, together with the heightened emotional security suggested by this research, might well be a factor in the development of language since children have the advantage of exploring their language in a non threatening environment.

It could also be conjectured that language development, particularly in written form, is positively related to a diffuse class structure with high cohesive character free from friction and competition among the members.

Conversely it can be hypothesized that the development of the skills of arithmetic are enhanced by a more formal high anxiety type of class functioning. Indeed this is suggested by Anderson in his discussion of his My Class instrument (see p. 137 f.). It is possible that a competitive atmosphere is conducive to the development of the skills found in this discipline. The principles of precision mathematics and the competitive nature of that method of teaching bears out this argument.

Similarly one might argue that on the basis of the results of this investigation, the same competitiveness and low cohesive nature

of classes influence the levels of aspiration of children. Those classes that had higher levels of aspiration had also higher levels of achievement in mathematics and higher levels of competitiveness with lower levels of cohesiveness found in the study of classroom climate.

At the same time, the children from classes with the opposite levels of these factors appear to have more realistic feelings about their attainment potential. It could be hypothesized that children who feel comfortable with their environment, have freedom to interact with other children, are more aware of their abilities and set goals for themselves more compatible with their levels of attainment. The research suggests that the children in vertically grouped classes experienced lower levels of competitiveness and friction and reached success in attaining the goals they set for themselves in the research on aspiration toward school tasks. This might also suggest a level of social maturity commensurate with the expectations they hold for themselves.

The research also suggests a relationship between social maturity and the sociometry of class structure reflected in the number and quality of interactions among children. This researcher suggests that the longer period of interactions among and across age levels develops a more caring child, a more helping child; one who has greater emotional awareness of others than those children who move through their schooling with a single age grouping. This socialization is borne out by the low level of anti-social activities on the playground and the greater amount of helping interactions in the classroom. Their classroom behaviour appears to be more task

oriented than does the classroom behaviour of children in a more formal single age classroom structure.

It is possible that the children in the vertically grouped classes have less reason to strive for attention and acceptance through competition for recognition than do children in single age classes. This caring attitude by the school and other children was perceived by the parents to be present in the vertically grouped classes. They acknowledged that their child was valued as an individual in the experimental classes.

Summary

The present research was conducted to investigate the general null hypothesis that there are no differences in advantages for the development of children found in vertically grouped classes from those found in horizontally grouped classes.

The investigation was organized to test twelve subhypotheses. The results suggest the following.

1. The null hypothesis that there is no difference in the academic achievement of children in vertically grouped classes from the academic achievement of children in horizontally grouped classes is rejected. No significant differences were found in academic achievement as tested by The Canadian Test of Basic Skills in the areas of vocabulary, reading, and mathematical problem solving and the development of mathematical understanding. There was a significant diffence ($p < .05$) between the control group over the experimental-control group in spelling and a difference approaching

significance at the .05 level in favour of the control group over the experimental group in mathematical concepts.

In the area of written expressive language there were significant differences in favour of the experimental group over the control group ($p < .05$) and the experimental-control group ($p < .01$). This finding suggests that the wide range of age is a contributing factor to the development of written expressive language.

2. The null hypothesis that there is no difference in the level of anxiety toward school of children in vertically grouped classes from the level of anxiety toward school of children in horizontally grouped classes was supported.

3. The null hypothesis that there is no difference in the self-esteem of children in vertically grouped classes from the self-esteem of children in horizontally grouped classes was supported.

4. The null hypothesis that there is no difference in the social maturity of children in vertically grouped classes from the social maturity of children in horizontally grouped classes was rejected. The research suggests that the social maturity of children as defined by the degree of socialization at a point in time is positively influenced by a vertical grouping organization of classes in schools ($p < .001$).

5. The null hypothesis that there is no difference in the emotional security of children in vertically grouped classes from the emotional security of children in horizontally grouped classes was rejected. The research suggests that the children in vertically grouped classes have a warmer more consistently positive attitude to

their teachers as expressed in projective techniques of sentence completion and drawings. The differences in specific areas were significant at the five percent level of confidence. This difference was in favour of the experimental group over both the experimental-control and control class, and it can be conjectured that the difference is attributable to the wide age range in the vertical grouping.

6. The null hypothesis that there is no difference in the levels of aspiration in goal setting among children in vertically grouped classes from those in horizontally grouped classes is rejected. The research suggests that the control group have higher goal setting aspirations than either the experimental-control or experimental groups ($p < .05$).

7. The null hypothesis that there is no difference in the workload of teachers in vertically grouped classes from that of teachers in horizontally grouped classes was rejected. The investigation suggests that teachers in vertically grouped classes have a heavier workload, but this is not a result of the wide age range of children. Rather it is as a result of the "multi-task" structure of the classroom, and is influenced negatively by the wide age span of vertical grouping.

8. The null hypothesis that there is no difference in the social structure and classroom climate in vertically grouped classes from those of horizontally grouped classes was rejected. The study suggests that the vertically grouped classes have a more diffused social structure with slightly less friction and competitiveness

expressed than do either the experimental-control or control groups. These differences are believed to be attributable to the wide age range of the children.

9. The null hypothesis that there is no difference in the cross-age interactions of children in vertically grouped classes from what would be expected by chance was rejected. The findings of this research suggest that there are more cross-age interactions in free play and in classroom activity than would be expected among this population of children ($p < .001$).

10. The null hypothesis that there is no difference in the flexibility of class organization in vertically grouped classes from the flexibility in horizontally grouped classes is rejected. The results of the investigation suggests that vertically grouped classes have greater provision for grouping, greater accessibility to help, more multi-task activities and greater provision for individual learning than has either the experimental-control or control classes. This may not be a result of the wide age span of children, but could be a result of the teaching styles of the teachers in these classes.

11. The null hypothesis that there is no diffenence in the retention of pupils in the vertically grouped classes from that found in horizontally grouped classes was suppported.

12. The research conducted to ascertain attitudes and reactions of parents to vertical grouping in the schools, suggests that the parents of children in vertically grouped classes accept and support the class organization. Their perceptions of the school are significantly more positive than the perceptions expressed by parents

in the school with control classes ($p < .001$).

This research suggests that vertically grouped classes have a number of advantages for the development of children not found in horizontally grouped classes. Further, some of these differences appear to be a result of the wide age span of the children in the experimental classes.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Summary of the Investigation

This study investigated whether vertically grouped classes have advantages for the development of children not found in horizontally grouped classes. Vertical grouping for the purposes of this study means an organization of pupil placement in which children remain at least two years with the same class and teacher. Horizontal grouping means an organization of pupil placement in which children of the same general age spend one year with the same teacher following a specific course of studies for that year.

The literature provided statements of theories as well as principles and characteristics of the school organization. Mycock (1970) claims that vertical grouping meets a number of needs of the child, and contends that vertical grouping provides for the fullest development of a balanced personality. Other writers claim that vertical grouping has the advantage that children can learn through mutual activities; that children have greater emotional security, self-esteem and better attitudes; and that there is greater flexibility to meet individual needs.

One disadvantage cited is an increased workload for teachers. Another concern is that younger children might be overwhelmed by their older peers. Still another, is an expressed fear that more advanced children might lose in their development because they spend time helping younger and/or less-able children.

The research suggests slightly positive results in favour of vertically grouped classes over horizontally grouped classes. Slight gains in aspects of academic achievement have been reported by some researchers while others have reported no differences.

In socio-emotional development, some investigations have yielded gains in personality and social development while others report no difference in social and anti-social behaviour. A reduction in anxiety was reported by one researcher while others reported no difference. Mycock (1966) reported higher levels of goal setting and emotional security in vertically grouped classes. Better attitudes toward school have been reported by some investigators with one study reporting no difference in attitude to reading.

The survey of the literature provided direction in identifying the subproblems of the present study, as well as direction for the design and procedures for the collection of data. A variety of techniques were used to generate data. These included pencil and paper tests; samples of children's work; classroom observations; video taped records; stimulated recall techniques; time sampling techniques; interviews, questionnaires; and searches of school records.

The research sample was drawn from two schools in the same School District in Nova Scotia. School A contained three classes of vertically grouped children in their first, second and third years of school. These became the experimental group (n = [illegible]. School B was organized with horizontally grouped classes and had one class of single aged third year students grouped with a teacher who used teaching strategies and class organization similar to those of the

experimental group. This class was referred to as the experimental-control group (n =20). Two other classes of third year children grouped in horizontal class organization became the control group (n = 39). A total of 131 children made up the research sample.

To investigate the general hypothesis, the areas of academic achievement, socio-emotional development and learning milieu were studied through twelve subproblems.

1. Academic achievement was studied by administering (a) The Canadian Tests of Basic Skills, (b) two Piagetian type tasks to determine levels of conservation, and (c) a task in written expressive language. Results yielded no significant differences between the experimental and control groups in vocabulary, reading, spelling, or mathematical understanding but a significant difference ($p < .05$) in written expressive language. The difference also was significant between the experimental and experimental-control group ($p < .01$).

2. Anxiety toward school was studied by the application of Sarason's Test Anxiety Scale for Children. The data indicated no significant difference.

3. Self-esteem of children was studied by the application of Coopersmith's Self-Esteem Inventory. Results yielded no significant difference.

4. Social maturity of children, meaning the degree of socialization of the subjects, was studied by direct classroom observations and time sampling techniques applied to video taped recordings of classroom activities. Results yielded significant differences between the experimental group and both the

experimental-control and control groups ($p < .001$). This difference could be as a result of the length of time the children are together as well as the wide-age span of the experimental classes.

5. Emotional security of children was studied by the projective techniques of sentence completion and drawings of children. The assumed relationship between mother and child was used as the point of reference for the study. Although not highly significant (variously from $p < .1$ to $p < .05$), the data suggests a greater emotional security expressed by the children in the experimental group.

6. The levels of aspiration represented by goal setting were studied by means of a school-like task in which estimations of attainment and attainment were measured for time trials. The differences noted were in favour of the control over both the experimental and experimental-control groups ($p < .05$). Differences were also noted in first and second year children (p approaching .05).

7. The workload of teachers was investigated by teachers' recording time spent in various activities over a two week period. The time spent by teachers in the experimental group was similar to the workload of the teacher in the experimental-control group and in excess of the time spent by teachers in the horizontally grouped classes. The difference is attributable to the multi-task nature of the work in these classes.

8. The social structure and classroom climate were studied by sociometric techniques and the application of Anderson's <u>My Class</u> inventory. The experimental classes present a diffused structure of

social preferences with no significant differences found in the five factors of My Class .

9. Cross-age interactions among children in the vertically grouped classes were studied by time sampling techniques during free play activities in the school yard. The data present highly significant differences ($p < .001$) from the interaction expected by chance in a sample of children with this composition.

10. Flexibility of class organization was investigated by study of school records, informal discussions, classroom observations and video taped records. The areas of (a) accessibility of help for children, (b) grouping patterns, (c) multi-task functioning and (d) provision for individual learning were studied. Greater flexibility was found in vertically grouped classes than in horizontally grouped classes which is related to the multi-age organization of the classes.

11. Retention of pupils was determined by an inspection of school records over a three year period. No significant differences were found from the data, but the records show children being retained two years in the primary division of the control classes, but not in the experimental classes. The data indicates the opportunity for children to complete the work of three years in two in the experimental classes.

12. The reactions of parents to vertical grouping were studied by means of questionnaire forcing retrospective responses. The data present general acceptance by parents of vertically grouped classes and suggest a greater degree of satisfaction by parents of the

school with vertically grouped classes over the school with horizontally grouped classes ($p < 001$).

Conclusions

Caution must be exercised in the drawing of conclusions from this study because the research sample is small ($N = 131$). Further, the results that have been found and recorded represent a summative form of assessment, and cannot be considered fixed gains. Generalizations to other situations cannot be made from the few advantages of vertical grouping found in the particular situations of this study. The study explored the vertical grouping in a single school and comparisons with other classrooms is difficult because of the many uncontrolled variables.

The present research suggests that children in vertically grouped classes have a similar level of achievement in vocabulary, reading, spelling and mathematics, but a more highly developed level of written expressive language than children in horizontally grouped classes. Further, vertical grouping enhances the learning of lower and higher achieving students. This researcher believes this difference is the result of the multi-age grouping in vertical grouping.

From the data of this study it is concluded that there are no significant differences between the children in vertically grouped classes and children in horizontally grouped classes in anxiety toward school nor in self-esteem. The research suggests that the vertically grouped classes have lower levels of goal setting aspirations than do

children in horizontally grouped classes; as well as, a more socially oriented structure with slightly lower levels of friction and competitiveness than do horizontally grouped classes. Further, there is a slightly better socio-emotional development of children in the vertically grouped classes than of those in horizontally grouped classes.

From this study it is concluded that there is greater flexibility of organization in vertically grouped classes and, therefore, the individual needs of children are more adequately addressed. This flexibility is not specifically a result of vertical grouping, but the researcher offers this characteristic as a prerequisite to instruction in vertical grouping, even though, as a result of the organization, the work of teachers is increased. It is concluded that many structures and practices found in schools are reflective of the administrative influences in the school, which suggests the importance of a positive, supportive attitude among the school community.

Retention of children has been shown to be a result of administrative practices, but the quality of the work children receive in their repeated year is a product of the individual teachers.

For this study, using a very small sample, it can be confidently concluded that parents are supportive of vertically grouped classes.

The study suggests that in this school vertical grouping in the early years of school has some advantages over horizontally grouped classes. The advantages to children, however, will be present

only to the degree that administrators and teachers strive to meet the individual needs of children.

Recommendations For Further Study

1. The relationship suggested in this study of classroom climate and academic achievement bears further study. It may be hypothesized that there is a direct relationship between the style of teaching (e.g. formal vs. informal) and the achievement of children in specific subject areas, the emotional security of children as well as their self-esteem.

2. There is also a need for longitudinal studies of vertical grouping to determine residual learning of children. Further, because the organization is usually found in the primary grades, there is the need to have information on the effects on children in a similar group structure in higher grades.

3. Because this is the first study to use the three group (experimental, experimental-control and control) analysis in an attempt to determine the effects of the wide age range on learnings, future research will be required to add to the findings of this study. It is believed that this design is a viable one and will be necessary as suggested by Ford (see p. 55) to determine the effects of the wide age range as a causal factor.

4. The study of learning milieu suggests that there is a correlation between the amount of parent information and their perceptions of acceptability of the schooling their children receive. This relationship is suggested in recent literature on effective

schools. Study in the area of home communication and reporting to parents appears to be an area of administrative practice that requires further investigation.

5. This investigation supports the null hypothesis as found by other researchers in anxiety toward school as measured by TASC; but contradicts the assertion of Borich (1977) who reports higher anxiety among English children than American. The mean scores of anxiety of this study are higher than those reported by Mycock which suggests differences between the anxiety of children in Canada from those of children either in England or the United States. This aspect of child development bears further study.

6. The levels of aspiration and the goal setting behaviour of the children in this study contradict the findings of earlier research (Mycock, 1966) that reported higher levels of aspiration in vertically grouped classes. It is hypothesized that the relationship between levels of aspiration in goal setting reflect the classroom climate; i.e., competitiveness and friction. It is suggested that these variables bear further study.

7. The breadth and findings of the present study point up the complexity of the classroom environment. This researcher recommends that future studies of classroom environment be more limited in their scope than that attempted here. The number of uncontrolled variables and the subtle interactions of children, teachers and the learning milieu, this researcher believes, preclude the singular use of traditional techniques to generate quantitative data. He believes that the more recent approaches of the "new wave" evaluator; i.e.,

classroom observation plus video tape records, time sampling techniques, stimulated recall including children, samples of children's work and other data are more useful to describe and thus understand what actually goes on in schools.

The standardized instruments used in this study were found to be acceptable for their purposes and other studies could include them. The nontraditional techniques of data collection require further use to establish reliability and validity. The combination of techniques that generate qualitative as well as quantitative data is suggested for use by future researchers.

Concluding Statement

The present investigation intended to study vertical grouping as a school organization. On the basis of the information collected, it has been concluded that, for this research sample, vertically grouped classes have advantages for the development of children not found in horizontally grouped classes.

Caution by school authorities is advocated in the generalization of these findings. Vertical grouping requires more than administrative organization to be successful. Influencing the success of the organization is a commitment by school staffs, acceptance and support of the organization by the school community, as well as a belief by all in child-centered education.

Appendix A

PROJECTIONS OF SCHOOL ENROLMENTS

KINGS COUNTY AMALGAMATED SCHOOL BOARD

OPENING DAY AND SEPTEMBER 30th ENROLMENTS - MASTER SHEET

Grade	1968-69 Open. Day	1969-70 Sept. 30	1970-71 Open. Day	1970-71 Sept. 30	1971-72 Open. Day	1971-72 Sept. 30	1972-73 Open. Day	1972-73 Sept. 30	1973-74 Open. Day	1973-74 Sept. 30	1974-75 Open. Day	1974-75 Sept. 30	1975-76 Open. Day	1975-76 Sept. 30	1976-77 Open. Day	1976-77 Sept. 30	1977-78 Open. Day	1977-78 Sept. 30	1978-79 Open. Day	1978-79 Sept. 30
Primary	1205	1134	1013	955	903	905	839	847	854	864	878	906	819	920	886	922	825	850		
Grade 1	1118	1147	1048	1067	938	960	861	867	830	853	830	835	822	880	833	828	833	873		
Grade 2	1098	1135	1160	1166	1099	1116	998	1023	872	866	836	857	824	887	845	883	871	861		
Grade 3	1088	1105	1136	1142	1145	1160	1090	1091	1020	1051	896	899	796	836	821	870	822	849		
Grade 4	1064	1102	1084	1115	1148	1161	1134	1135	1039	1065	1023	1046	824	892	825	830	822	821		
Grade 5	1076	1060	1067	1105	1087	1107	1124	1140	1122	1136	1051	1062	946	1014	866	895	805	854		
Grade 6	1024	1092	1060	1065	1136	1144	1088	1093	1110	1124	1101	1116	999	1066	982	1009	828	860		
TOTAL ELEM.	7673	7775	7568	7715	7456	7553	7134	7196	6847	6953	6615	6721	6030	6495	6052	6234	5806	5968		
Grade 7	1078	1098	1111	1114	1048	1070	1158	1177	1192	1203	1178	1214	1123	1235	1131	1147	1083	1128		
Grade 8	904	1012	1059	1054	1117	1147	1036	1062	1158	1195	1126	1163	1063	1166	1114	1188	1047	1111		
Grade 9	761	871	904	900	1001	1031	1010	1043	979	1011	1092	1122	977	1085	1057	1121	1041	1107		
Grade 10	606	679	713	756	768	779	750	787	780	793	712	720	760	827	761	784	744	793		
Grade 11	550	568	588	615	634	661	572	605	605	617	627	642	590	639	519	629	579	631		
Grade 12	375	548	476	453	435	451	434	486	442	462	447	478	457	526	394	470	475	546		
TOTAL SECOND.	4274	4606	4854	4892	5003	5139	4960	5160	5156	5281	5182	5339	4970	5473	5027	5339	4969	5322		
OTHER SPECIAL	105	132	116	Com. 38 143	100	137	118	147	129	145	123	136	91	164	189	188	122	152		
VOCATIONAL	558	528	396	453	374	425	501	558	518	612	572	661	581	706	672	800	670	844		
GRAND TOTALS	12,610	13,111	12,931	13,241	12,933	13,254	12,713	13,061	12,650	12,997	12,492	12,857	11,672	12,843	11,940	12,563	11,567	12,276		

NOTE: Grades 10, 11, and 12 general course students are not included in the Grades 10, 11, and 12 academic totals that are considered as part of the Vocational School enrolment.

KINGS COUNTY DISTRICT SCHOOL BOARD

5 YEAR PROJECTIONS

DEPARTMENT OF EDUCATION

	1984-5	1985-6	1986-7	1987-8	1988-9
Aldershot	410	426	416	426	439
Avonport (LE SHAW)	362	368	365	368	364
Aylesford (ST. MARY'S)	298	291	279	284	272
Berwick	310	312	308	318	316
Cambridge	257	248	234	232	214
Central Kings	776	692	647	567	546
Coldbrook	691	745	810	850	873
Cornwallis	505	463	436	423	394
DND-R C Gordon					
-AVM Morfee					
-Dwight Ross	195	174	148	129	111
-Francophone					
Gaspereau	362	387	413	424	432
Glooscap	481	487	487	484	485
Horton	1019	1014	1012	1026	1039
Kentville	858	822	778	740	723
Kingston	616	617	616	647	627
New Minas	512	523	514	512	516
Port Williams	350	349	347	337	332
Somerset	304	299	288	288	282
Vocational					
West Kings	969	912	903	847	839
Wolfville	478	470	463	451	455
TOTAL	9753	9599	9464	9353	9259
KCDSB Total (Same Schools)	10052	10085	10052	9928	9789

DATE: 83/09/14

NOVA SCOTIA DEPARTMENT OF EDUCATION
ENROLMENT STATISTICS

SCHEDULE P
QZRP215D PAGE: 1

	(------ ENROLMENTS -------)			(------- STUDENT UNITS -------)		
	1981	1982	PROJECTED 1983	1983	PROJECTED 1984	% INCREASE (DECREASE)
ANNAPOLIS DISTRICT SCHOOL BRD	4,500	4,496	4,454	4,904	4,891	(.25)
ANTIGONISH DISTRICT SCHOOL BRD	4,850	4,797	4,811	5,266	5,256	(.18)
CAPE BRETON DISTRICT SCHOOL BD	22,707	22,160	21,368	24,618	23,871	(3.03)
CONS SCOL CLARE-ARGYLE DIST SB	3,722	3,665	3,534	4,054	3,955	(2.45)
COLCHESTER-EAST HANTS DIST SB	12,927	12,921	12,721	14,689	14,609	(.54)
CUMBERLAND DISTRICT SCHOOL BRD	7,238	7,167	6,946	7,901	7,752	(1.89)
DARTMOUTH DISTRICT SCHOOL BRD	12,873	12,308	11,776	13,879	13,259	(4.41)
DIGBY DISTRICT SCHOOL BOARD	2,597	2,529	2,415	2,802	2,701	(3.61)
GUYSBOROUGH DISTRICT SCHOOL BD	3,048	2,989	2,896	3,297	3,217	(2.43)
HALIFAX CITY DISTRICT SCH BRD	17,348	16,848	16,115	18,864	18,174	(3.68)
HALIFAX CO-BEDFORD DISTRICT SB	27,220	27,363	27,588	29,628	30,009	1.29
HANTS WEST DISTRICT SCHOOL BRD	3,701	3,616	3,499	3,997	3,887	(2.75)
INVERNESS DISTRICT SCHOOL BRD	5,398	5,345	5,254	5,885	5,812	(1.24)
KINGS DISTRICT SCHOOL BOARD	11,047	10,982	11,015	12,927	12,948	.15
LUNENBURG DISTRICT SCHOOL BRD	8,752	8,714	8,645	9,537	9,492	(.48)
NORTHSIDE-VICTORIA DISTRICT SB	8,400	8,163	7,936	9,951	9,678	(2.75)
PICTOU DISTRICT SCHOOL BOARD	11,076	11,072	10,909	12,055	11,973	(.68)
QUEENS DISTRICT SCHOOL BOARD	2,726	2,694	2,643	2,951	2,911	(1.35)
RICHMOND DISTRICT SCHOOL BOARD	3,464	3,322	2,934	3,334	3,270	(1.93)
SHELBURNE DISTRICT SCHOOL BRD	3,538	3,547	3,504	3,372	3,328	(1.15)
YARMOUTH DISTRICT SCHOOL BOARD	3,545	3,486	3,395	3,845	3,759	(2.17)
HANTSPORT BOARD OF SCHOOL COMM	297	278	271	313	299	(4.35)
PROVINCIAL TOTAL	188,624	178,102	174,615	198,559	195,547	(1.52)

NOVA SCOTIA DEPARTMENT OF EDUCATION

ENROLMENTS BY DISTRICT

DISTRICT	1977-78	1978-79	1979-80	1980-81	1981-82	1982-83	PROJECTED 1983-84
Annapolis	5029	4845	4694	4643	4501	4496	4454
Antigonish	5048	4927	4911	4901	4900	4842	4856
Cape Breton	25639	24887	24119	23441	22909	22371	21571
Clare-Argyle	4061	3982	3946	3848	3722	3665	3534
Col-East Hants	14143	13894	13573	13268	13266	13257	13057
Cumberland	7973	7858	7641	7418	7238	7167	6946
Dartmouth	15889	15142	14298	13620	13073	12541	12009
Digby	2837	2757	2686	2664	2600	2533	2419
Guysborough	3189	3120	3071	3050	3048	2989	2896
Halifax	20811	19788	18798	18156	17348	16902	16169
Halifax Co-Bedford	26512	27225	27262	27239	27220	27363	27588
Hants West	4172	4080	3916	3884	3701	3616	3499
Inverness	5716	5736	5673	5561	5440	5383	5292
Kings County	12276	11843	11476	11334	11107	11060	11093
Lunenburg County	9080	9051	8943	8837	8752	8714	8645
Northside-Victoria	9512	9173	8891	8701	8445	8203	7970
Pictou	11525	11377	11303	11352	11153	11138	10975
Queens	2970	2938	2875	2786	2728	2696	2645
Richmond	3498	3427	3361	3250	3104	3055	2967
Shelburne	3879	3825	3677	3624	3588	3547	3504
Yarmouth	3932	3863	3820	3690	3545	3486	3395
Hantsport	346	332	324	318	297	278	271
TOTAL	198037	194070	189258	185585	181685	179302	175755

RESEARCH
SEPTEMBER 1983

Appendix B

ACADEMIC ACHIEVEMENT (SUBPROBLEM ONE)

APPENDIX B

Canadian Tests of Basic Skills Achievement
Experimental Group

S	V		R		L		M-1		M-2	
	RS	GE	RS	GE	RS	GE	RS	GE	RS	GE
1	11	1.9	30	2.1	16	2.4	13	2.0	9	1.7
2	20	3.0	48	3.1	14	2.2	16	2.4	22	3.3
3	15	2.4	45	2.9	8	1.3	15	2.3	18	2.8
4	27	4.2	61	4.7	26	4.2	21	3.0	22	3.3
5	13	2.2	32	2.2	10	1.7	16	2.4	13	2.1
6	14	2.3	28	2.0	17	2.6	11	1.7	16	2.5
7	26	4.0	62	4.9	28	4.9	25	3.5	32	2.1
8	22	3.3	44	2.9	17	2.6	20	2.8	17	2.6
9	14	2.3	33	2.3	11	1.9	18	2.6	21	3.2
10	19	2.9	53	3.5	17	2.6	26	3.7	21	3.2
11	23	3.4	58	4.2	22	3.2	21	3.0	17	2.6
12	19	2.9	50	3.2	16	2.4	19	2.7	15	2.4
13	27	4.2	54	3.6	15	2.3	23	3.3	23	3.5
14	5	1.0	25	1.8	7	1.1	22	3.1	19	2.9
15	20	3.0	53	3.5	19	2.8	18	2.6	18	2.8
16	9	1.5	22	1.6	11	1.9	13	2.0	19	2.9
17	25	3.8	49	3.1	29	5.4	19	2.7	14	2.2
18	24	3.6	51	3.3	17	2.6	15	2.3	16	2.5
19	11	1.9	23	1.7	11	1.9	19	2.7	11	1.9
20	15	2.4	50	3.2	16	2.4	18	2.6	19	2.9
21	8	1.4	18	1.4	12	2.0	17	2.5	15	2.4
22	11	1.9	37	2.5	13	2.1	19	2.7	12	2.0
23	8	1.4	22	1.6	11	1.9	18	2.6	15	2.4

S - student
V - vocabulary sub-test
R - reading sub-test
L - spelling sub-test
M-1 - mathematics concepts sub-test
M-2 - mathematics problems sub-test
RS - raw score
GE - grade equivalent

Canadian Tests of Basic Skills Achievement
Experimental Control Group

S	V		R		L		M-1		M-2	
	RS	GE	RS	GE	RS	GE	RS	GE	RS	GE
1	15	2.4	42	2.8	12	2.0	21	3.0	24	3.6
2	12	2.0	38	2.5	14	2.2	15	2.3	15	2.4
3	28	4.6	61	4.7	25	3.9	26	3.7	26	4.0
4	16	2.5	39	2.6	21	3.1	20	2.8	13	2.1
5	21	3.1	47	3.0	19	2.8	21	3.0	25	3.8
6	19	2.9	55	3.8	15	2.3	15	2.3	12	2.0
7	26	4.0	53	3.5	22	3.2	20	2.8	14	2.2
8	26	4.0	56	3.9	24	3.7	18	2.6	21	3.2
9	12	2.0	27	2.0	14	2.2	18	2.6	13	2.1
10	23	3.4	54	3.6	20	2.9	18	2.6	14	2.2
11	9	1.5	34	2.3	13	2.1	21	3.0	25	3.8
12	28	4.6	52	3.4	22	3.2	23	3.3	19	2.9
13	12	2.0	21	1.5	13	2.1	19	2.7	17	2.6
14	18	2.8	53	3.5	21	3.1	17	2.5	16	2.5
15	14	2.3	38	2.5	14	2.2	15	2.3	20	3.0
16	18	2.8	55	3.8	21	3.1	20	2.8	14	2.2
17	19	2.9	56	3.9	15	2.3	18	2.6	18	2.8
18	20	3.0	53	3.5	18	2.7	15	2.3	18	2.8
19	23	3.4	44	2.9	14	2.2	19	2.7	28	4.5

Canadian Tests of Basic Skills Achievement
Control Group

S	V		R		L		M-1		M-2	
	RS	GE	RS	GE	RS	GE	RS	GE	RS	GE
1	10	1.7	27	2.0	10	1.7	19	2.7	16	2.5
2	11	1.9	25	1.8	11	1.9	22	3.1	19	2.9
3	14	2.3	34	2.3	15	2.3	16	2.9	17	2.6
4	20	3.0	53	3.5	12	2.0	22	3.1	23	3.5
5	7	1.3	21	1.5	15	2.3	14	2.1	16	2.5
6	12	2.0	12	.9	16	2.4	17	2.5	24	3.6
7	12	2.0	17	1.3	12	2.0	20	2.8	21	3.2
8	22	3.3	59	4.4	19	2.8	23	3.3	23	3.5
9	24	3.6	56	3.9	14	2.2	19	2.7	22	3.3
10	14	2.3	27	2.0	13	2.1	17	2.5	18	2.8
11	21	3.1	45	2.9	14	2.2	25	3.5	24	3.6
12	5	1.0	36	2.4	9	1.5	16	2.4	22	3.3
13	13	2.2	36	2.4	13	2.1	18	2.6	17	2.6
14	21	3.1	46	3.0	23	3.4	19	2.7	16	2.5
15	13	2.2	31	2.2	16	2.4	19	2.7	17	2.6
16	21	3.1	48	3.1	22	3.2	19	2.7	25	3.8
17	3	.8	16	1.3	10	1.7	16	2.4	19	2.9
18	16	2.5	51	3.3	16	2.4	23	3.3	9	1.7
19	7	1.3	27	2.0	10	1.7	20	2.8	17	2.6
20	30	5.5	56	3.9	22	3.2	20	2.8	16	2.5
21	9	1.5	26	1.9	9	1.5	18	2.6	15	2.4
22	19	2.9	33	2.3	10	1.7	20	2.8	18	2.8
23	9	1.5	21	1.5	12	2.0	10	1.6	11	1.9
24	19	2.9	60	4.5	14	2.2	24	3.4	21	3.2
25	19	2.9	52	3.4	13	2.1	25	3.5	8	1.5
26	11	1.9	44	2.9	14	2.2	21	3.0	14	2.2
27	20	3.0	50	3.2	18	2.7	29	4.2	21	3.2
28	6	1.1	abs		13	2.1	15	2.3	17	2.6
29	28	4.6	61	4.7	27	4.5	28	4.0	23	3.5
30	9	1.5	29	2.1	15	2.3	24	3.4	19	2.9
31	26	4.0	60	4.5	26	4.2	28	4.0	26	4.0
32	26	4.0	55	3.8	21	3.1	25	3.5	23	3.5
33	20	3.0	51	3.3	18	2.7	23	3.3	13	2.1
34	8	1.4	24	1.8	7	1.1	22	3.1	13	2.1
35	17	2.7	47	3.0	18	2.7	21	3.0	16	2.5

Mathematical Understanding
Details of Two Piaget-type Tests

I. The Conservation of Discontinuous Quantities

The Experiment

The child was presented with two similar cylindrical clear plastic jars of equal size. The examiner placed two dried beans in one jar while the child simultaneously placed two in the second jar. About thirty beans were placed in the jars.

The child, was asked: "Are there 'more' or 'less' or 'the same' in the two jars?" If the children understood that each jar contained the same quantity, the contents of one jar was then poured into a taller and thinner jar. The other jar was left as a standard. Again the child was asked: "Are there 'more' or 'less' or 'the same' in each jar?".

The beans from the taller jar were then poured into a flat, wide container and the same question asked again.

Stage I. The child will either consider there are more beans in the second jar because it is "taller" than the standard or less in the third jar because it is "spread out" or conversely the standard jar is "taller".

Stage II. The child will have begun to acquire the concept of conservation but will not be certain. For example, although the child will be able to conserve, when the beans are put into the third jar the child will revert to a stage one type answer.

Stage III. The concept of conservation will have been achieved, and the child will treat the idea that the quantity could have changed with some amusement.

II. The Additive Composition of Number and the Arithmetic Relation Part to Whole

The Experiment

The child was given four smarties for morning recess and four for after school. The candies were placed in two rows of four. The child was then told that he has the same number for the next day, and two more groups of four were placed by the first groups. Then after the child had been told that he would not be hungry "tomorrow" morning and would only eat one smartie, three smarties were placed with the four for the next afternoon. The child could then see

```
x x x x          x
x x x x          x x x x x x x
```

and was asked whether he has the same number of smarties for each day.

Stage I. The child will make a qualitative response and will either centre on the "1" and consider that 1+7 is "less" than 4+4 or will look at the "7" and think that 1+7 is "more" than 4+4.

Stage II. At this stage the child will take a long time to realize that while 7 is 3 more than 4, 1 is 3 less, but in the end will achieve the correct answer.

Stage III. At this stage the child will regard the question with some amusement - he will understand that 4 = 4 = 1+3 = 7-3. Only when a child is at this stage can he be said to have arrived at an effective understanding of addition and subtraction.

Rating Scale Used by Judges for
Written Expressive Language

Stage I Describing. The Child records what is in the picture and writes close to speech intention.

Stage II Interpreting. The child explains, assesses, infers or deduces, gives reasons for things known to and observed by him. Reasoning is from past events experienced by him.

Stage III Generalizing. THe child relates an exposition of events in a chronological order.

Stage IV Speculative. The child offers hypotheses (which may appear irrelevant or inadequate) while incorporating causal relationships. There is present a reflection on events with the drawing of conclusions.

Written Expressive Language

Student	Experimental			Experimental-Control			Control		
	Judge 1	Judge2	T	Judge 1	Judge 2	T	Judge 1	Judge 2	T
1	4	4	8	4	2	6	2	1	3
2	4	3	7	4	2	6	2	1	3
3	1	1	2	2	3	5	2	2	4
4	2	3	5	2	2	4	2	1	3
5	4	4	8	2	4	6	1	1	2
6	1	1	2	2	2	4	2	2	4
7	1	1	2	1	1	2	1	2	3
8	4	3	7	2	2	4	1	2	3
9	4	3	7	2	2	4	2	2	4
10	2	3	5	2	2	4	2	2	4
11	4	2	6	1	4	5	2	3	5
12	1	3	4	2	2	4	3	4	7
13	3	3	6	1	2	3	4	4	8
14	4	3	7	1	1	2	3	4	7
15	3	4	7	2	1	3	3	4	7
16	1	1	2	2	2	4	2	1	3
17	4	2	6	2	1	3	2	2	4
18	4	4	8	1	1	2	1	1	2
19	2	4	6				1	1	2
20	4	4	8				3	4	7
21	3	4	7				1	2	3
22	3	1	4				1	1	2
23	2	1	3				2	2	4
24	4	4	8				2	4	6
25	3	2	5				3	1	4
26							3	1	4
27							2	2	4
28							2	2	4
29							4	4	8
30							2	2	4
31							2	1	3
32							1	1	2
33							2	1	3
34							4	4	8
35							3	4	7

INTERNAL MEDICINE

Appendix C

ANXIETY TOWARDS SCHOOL (SUBPROBLEM TWO)

APPENDIX C

Test Anxiety (7 yr. old children)

Test Anxiety Scale for Children

Directions given to each child at the beginning of the test.

(Investigator and child alone in interview room)

INVESTIGATOR:

"I am going to ask you some questions - questions different form ordinary school questions.

These questions are about how you feel and so they have no right or wrong answers.

Nobody else will see the answers to these questions, so just say exactly how you feel.

Listen to each question and then answer Yes or No.

Remember there are no right or wrong answers - I just want you to tell me how you feel."

(Proceed to ask questions 1-18).

After question 18:

"In the nest questions the word TEST is used. Do you know what a test is? What I mean by a test is when the teacher asks you to do something to find out how much you have learned. It could be your reading or your writing or your math".

(Complete test items 19-30).

Test Anxiety (7 yr. old children)

List of Items in Sarason's Test Anxiety Scale for Children

Name.....School.....

1. Do you worry when the teacher says she is going to ask you questions to find how much you know? Yes No

2. Do you worry about being promoted, that is, passing from the.....grade to the.....grade at the end of the year? Yes No

3. When the teacher asks you to get up in front of the class and read aloud, are you afraid that you are going to make some bad mistakes? Yes No

4. When the teacher says that she is going to call upon some boys and girls in the class to do arithmetic problems, do you hope that she will call upon someone else and not on you? Yes No

5. Do you sometimes dream at night that you are in school and cannot answer the teacher's question? Yes No

6. When the teacher says she is going to find out how much you have learned, does your heart begin to beat faster? Yes No

7. When the teacher is teaching you about arithmetic, do you feel that other children in the class understand her better than you? Yes No

8. When you are in bed at night, do you sometimes worry about how you are going to do in class the next day? Yes No

9. When the teacher asks you to write on the blackboard in front of the class, does the hand you write with sometimes shake a little? Yes No

10. When the teacher is teaching you about reading, do you feel that other childen in the class understand her better than you? Yes No

11. Do you think you worry more about school than other children? Yes No

12. When you are at home and you are thinking about your arithmetic lesson for the next day, do you become afraid that you will get the answers wrong when the teacher calls upon you? Yes No

13. If you are sick and miss school, do you worry that you will do more poorly in your schoolwork than other children when you return to school? Yes No

14. Do you sometimes dream at night that other boys and girls in your class can do things you cannot do? Yes No

15. When you are at home and you are thinking about your reading lesson for the next day, do you worry that you will do poorly on the lesson? Yes No

16. When the teacher says that she is going to find how much you have learned, do you get a funny feeling in your stomach? Yes No

17. If you did very poorly when the teacher called on you, would you probably feel like crying even though you would try not to cry? Yes No

18. Do you sometimes dream at night that the teacher is angry because you do not know your lessons? Yes No

19. Are you afraid of school tests? Yes No

20. Do you worry a lot before you take a test? Yes No

21. Do you worry a lot while you are taking a test? Yes No

22. After you have taken a test do you worry about how well you did no the test? Yes No

23. Do you sometimes dream at night that you did poorly on a test you had in school that day? Yes No

24. When you are taking a test, does the hand you write with shake a little? Yes No

25. When the teacher says that she is going to give the class a test, do you become afraid that you will do poorly? Yes No

26. When you are taking a hard test, do you forget some things you knew very well before you started taking the test? Yes No

27. Do you wish a lot of times that you didn't worry so much about tests? Yes No

28. When the teacher says that she is going to give the class a test, do you get a nervous or funny feeling? Yes No

29. While you are taking a test do you usually think you are doing poorly? Yes No

30. While you are on your wy to school, do you sometimes worry that the teacher may give the class a test? Yes No

Sarason's Test Anxiety Scale for Children

Experimental		Experimental-Control		Control	
Boy	Girl	Boy	Girl	Boy	Girl
11	12	10	18	19	13
9	11	12	8	7	16
10	20	16	23	5	10
7	10	8	26	2	2
13	13	17	7	4	4
11	10	2	8	9	7
16	20	10	5	20	17
18	9	7		9	12
14	12	17		14	11
1	14	7		2	11
8	13	19		9	14
10	13	14		6	17
7		12		4	11
				4	22
				7	14
				19	6
				0	
				9	
				9	
				15	
				14	
n = 25		n = 20		n = 39	

Appendix D

SELF-ESTEEM (SUBPROBLEM THREE)

APPENDIX D

Instructions for Scoring the SEI

There are five subscales which cycle in sequence the length of the SEI. These subscales are:

General Self	Items 1, 2, 3, 8, 9, 10, 15, 16, 17, etc.
Social Self--peers	Items 4, 11, 18, 25, 32, 39, 46, 53
Home--parents	Items 5, 12, 19, 26, 33, 40, 47, 54
Lie Scale	Items 6, 13, 20, 27, 34, 41, 48, 55
School--academic	Items 7, 14, 21, 28, 35, 42, 49, 56

As noted above the subscales do not have to be scored separately <u>with the exception of the Lie Scale.</u> The responses indicating high self-esteem and low Lie, defensive reactions are listed below.

The scores are reported as:

I. Total number correct of all scales excluding Lie (a maximum of 50).

II. A <u>separate</u> score total number of responses indicative of defensive, Lie reaction (a maximum of 8).

For convenience sake the total SEI score is multiplied by two so that maximum score is 100.

<u>Thus</u> SEI score 50 x 2 = 100

Lie score 8 = 8

In the event that separate subscales for a given purpose are desired the responses are scored and noted separately in the same manner as the Lie Scale.

	Like Me	Unlike Me		Like Me	Unlike Me		Like Me	Unlike Me
1.		x	21.	x		41.		x
2.	x		22.		x	42.		x
3.		x	23.	x		43.		x
4.	x		24.	x		44.		x
5.	x		25.		x	45.	x	
6.		x	26.		x	46.		x
7.		x	27.		x	47.	x	
8.		x	28.	x		48.		x
9.		x	29.	x		49.		x
10.	x		30.		x	50.		x
11.	x		31.		x	51.		x
12.		x	32.	x		52.		x
13.		x	33.		x	53.		x
14.	x		34.		x	54.		x
15.		x	35.		x	55.		x
16.		x	36.	x		56.		x
17.		x	37.		x	57.	x	
18.	x		38.		x	58.		x
19.	x		39		x			
20.		x	40.		x			

APPENDIX D

Student number _____ Date _____

Form B Practice

I would like to know how you feel about some things and you can tell me by putting checks ( ) on this paper. I'm going to call out each number and read out the sentence for you. If you do not uncerstand a word or the sentence, ask me and I'll explain it to you. Please mark each statement in the following way.

If the statement describes how you usually feel, put a check ( ) in the column "like me".

If the statement does not describe how you usually feel, put a check ( ) in the column "not like me".

There are no right or wrong answers. This is not a test. Some answers will be in between "like me" and "not like me" so check one according to how you usually feel.

	Like Me	Not Like Me
A. I play outside at recess	____	____
B. I've been in this room all year	✓	____
C. I'm wearing something red today	____	____
D. I'm going away for a holiday this weekend.	____	____

APPENDIX D

Student number _____ Date _____ Room _____

Inventory, Form B

I would like to know how you feel about some things and you can tell me by putting checks ( ) on this paper. I'm going to call out each number and read out the sentence for you. If you do not understand a word or the sentence, ask me and I'll explain it to you. Please mark each statement in the following way.

	Like Me	Not like Me
1. I spend a lot of time daydreaming.	_____	_____
2. I'm pretty sure of myself.	_____	_____
3. I often wish I were someone else.	_____	_____
4. I'm easy to like.	_____	_____
5. My parents and I have a lot of fun together.	_____	_____
6. I never, <u>never</u> worry about anything.	_____	_____
7. I find it very hard to talk in front of the class.	_____	_____
8. I wish I were younger.	_____	_____
9. There are lots of things about myself I'd change if I could.	_____	_____
10. I can make up my mind without too much trouble.	_____	_____
11. I'm a lot of fun to be with.	_____	_____
12. I get upset easily at home.	_____	_____

		Like Me	Not Like Me
13.	I always, always do the right thing.	____	____
14.	I'm proud of my school work.	____	____
15.	Someone always has to tell me what to do.	____	____
16.	It takes me a long time to get used to anything new.	____	____
17.	I'm often sorry for the things I do.	____	____
18.	I'm liked by kids my own age.	____	____
19.	My parents usuallly consider my feelings; they usually worry about how I feel before we do things.	____	____
20.	I'm never, never unhappy.	____	____
21.	I'm doing the best work that I can.	____	____
22.	I give in very easily.	____	____
23.	I can usually take care of myself.	____	____
24.	I'm pretty happy.	____	____
25.	I would rather play with children younger than me.	____	____
26.	My parents expect too much of me; they expect me to do very hard things.	____	____
27.	I like everyone I know; there is no one I don't like.	____	____
28.	I like to be called on in class.	____	____
29.	I understand myself (I know what I can do and why I feel the way I do).	____	____
30.	It's pretty tough to be me.	____	____
31.	Things are all mixed up in my life.	____	____

		Like Me	Not Like Me
32.	Kids usually follow my ideas.	____	____
33.	No one pays much attention to me at home.	____	____
34.	I never, never get scolded.	____	____
35.	I'm doing as well in school as I'd like to.	____	____
36.	I can make up my mind and stick to it.	____	____
37.	I really don't like being a boy--girl.	____	____
38.	I have a low opinion of myself. I don't think very much of myself.	____	____
39.	I don't like to be with other people.	____	____
40.	There are many times when I'd like to leave home.	____	____
41.	I'm never, never shy.	____	____
42.	I often feel upset in school.	____	____
43.	I often feel ashamed of myself. I feel bad about myself.	____	____
44.	I'm not as nice looking as most people.	____	____
45.	If I have something to say, I usually say it.	____	____
46.	Kids pick on me very often.	____	____
47.	My parents understand me.	____	____
48.	I always, always tell the truth.	____	____
49.	My teacher makes me feel I'm not good enough.	____	____
50	I don't care what happens to me.	____	____

	Like me	Not Like Me
51. I'm a failure. I can't do anything right.	____	____
52. I get upset easily when I'm scolded.	____	____
53. Most people are better liked than I am.	____	____
54. I usually feel as if my parents are pushing me.	____	____
55. I always, <u>always</u> know what to say to people.	____	____
56. I often get discouraged in school. School often seems hopeless to me.	____	____
57. Things usually don't bother me.	____	____
58. I can't be depended on. I can't be trusted to do the things I say I'm going to do.	____	____

Self - Esteem Inventory Experimental Group
Distribution of Scores

Sr	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	1 RANDOM	2 RANDOM	3 RANDOM	4 RANDOM	5 RANDOM	TOTAL
1	-	2	2	2	2	-	2	-	2	2	2	-	-	2	2	-	-	2	2	1	2	-	2	2	2	-	-	2	2	-	-	-	-	1	-	2	2	2	2	2	-	-	2	2	2	2	2	-	2	2	2	-	2	2	-	2	-	2	34	14	10	1	12	73
2	2	-	-	2	2	-	2	2	-	-	2	-	-	2	2	-	2	2	-	1	2	2	2	2	2	2	-	2	2	2	2	-	-	-	2	2	2	2	-	2	1	2	2	2	2	2	2	-	2	2	2	2	2	2	-	2	2	-	40	12	10	2	16	80
3	2	-	-	2	2	1	2	2	-	-	2	2	1	2	-	-	-	2	-	1	-	2	2	2	2	-	-	2	2	2	2	2	1	-	2	2	-	2	2	-	2	2	-	-	-	2	-	2	2	2	2	2	2	-	2	2	-	30	12	12	4	7	71
4	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	-	2	2	1	2	-	2	2	2	2	-	2	2	2	2	-	2	-	2	2	2	2	2	1	2	2	2	2	2	2	2	-	2	2	2	-	2	2	-	2	2	2	49	14	15	3	5	97
5	2	2	2	-	2	1	2	2	-	2	-	-	-	2	2	-	-	2	-	-	2	2	2	2	-	2	-	-	2	2	2	2	-	1	-	2	2	2	2	2	-	2	2	2	2	-	2	-	-	2	2	2	2	2	-	2	2	2	46	6	10	2	10	74
6	2	2	2	2	2	1	2	2	-	2	2	-	1	-	-	-	2	2	2	1	2	-	2	2	2	-	-	-	2	2	2	2	-	1	2	2	2	2	-	2	-	2	-	-	2	2	2	-	2	2	2	-	2	2	-	38	14	10	4	14	80
7	-	-	-	2	2	1	-	2	-	-	2	2	1	2	-	2	-	2	2	1	2	-	2	2	2	2	1	-	2	-	2	2	2	1	-	2	2	-	2	-	-	2	2	-	2	-	2	2	2	-	2	2	2	1	-	-	2	-	-	-	1	2	26	14	20	7	8	61
8	2	2	-	2	2	1	2	-	-	2	2	-	1	2	2	-	-	2	-	1	2	0	2	2	2	2	-	2	2	2	2	-	2	1	2	2	2	2	2	-	-	-	2	2	2	-	2	2	2	2	2	2	-	2	2	1	2	-	2	32	14	12	5	14	77
9	2	-	2	-	2	1	2	2	-	2	2	2	1	2	2	-	2	-	2	1	2	2	-	2	2	-	1	-	2	2	2	2	-	1	2	2	2	-	-	2	1	2	2	2	2	2	2	2	2	2	2	2	2	-	2	2	-	42	10	10	6	14	82
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11	2	2	2	2	2	-	-	2	2	2	2	-	2	2	-	2	2	-	-	2	2	2	2	2	-	1	2	2	2	2	2	2	1	-	2	2	2	2	2	-	2	2	-	2	2	2	-	2	2	2	2	2	2	-	2	2	2	48	16	14	2	12	92
12	2	-	2	2	2	1	2	2	2	2	2	-	1	-	2	-	-	2	-	1	2	-	2	2	2	2	-	-	2	2	2	2	2	-	2	2	2	2	2	2	-	-	2	2	2	-	2	1	2	2	2	2	2	2	-	2	-	2	42	14	12	4	8	80
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14	2	2	2	2	2	-	2	2	-	-	-	-	-	2	2	-	2	2	-	-	2	2	2	2	-	2	-	2	2	2	2	2	2	1	2	2	2	2	-	2	-	2	2	-	2	-	2	-	2	-	2	2	2	1	2	2	-	40	10	12	2	16	80
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17	2	2	2	-	2	1	-	2	2	2	2	2	1	2	2	2	2	2	-	-	2	2	2	2	2	2	-	-	-	2	2	2	2	-	2	2	2	2	2	1	2	-	2	2	2	2	-	2	2	2	-	2	2	-	-	2	2	34	12	14	2	12	74
18	2	2	2	-	2	1	-	2	2	2	2	2	1	2	2	2	2	2	-	-	2	2	2	2	2	2	-	-	-	-	2	-	-	-	1	-	2	2	2	2	1	-	-	-	-	2	2	-	2	2	-	2	2	-	1	2	2	2	40	12	10	5	8	75
19	2	2	2	-	2	1	-	2	2	-	2	2	1	2	-	-	-	2	2	-	2	2	2	2	2	-	1	2	-	2	2	-	-	1	-	-	2	2	2	2	-	-	2	2	2	2	-	2	2	2	-	2	2	-	1	2	2	38	14	12	5	10	73
20	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	-	-	2	2	2	2	-	-	1	2	2	2	2	2	2	-	-	2	2	2	2	2	-	2	2	2	2	2	-	2	2	2	52	12	12	8	14	84
21	2	2	2	2	2	1	-	2	2	2	2	-	1	2	2	2	-	-	2	-	2	2	2	2	2	-	1	-	2	2	2	2	2	1	2	2	2	2	2	1	-	2	2	2	2	2	1	-	-	2	-	2	2	-	-	2	2	46	14	12	6	6	84
22	-	-	-	2	2	1	2	2	-	2	2	2	1	2	2	2	-	-	2	-	2	2	2	2	2	-	1	-	-	2	2	2	2	1	-	2	2	2	-	2	-	2	2	2	2	2	2	-	2	2	2	2	2	2	-	2	2	38	12	14	5	14	83
23	2	2	2	-	2	1	-	2	-	2	2	-	1	2	-	-	-	2	-	-	2	2	2	2	2	2	1	-	2	2	-	2	-	1	2	-	2	2	2	2	1	-	2	-	-	2	-	2	-	-	-	-	-	-	-	2	2	54	10	8	5	6	63
24	-	2	2	2	-	-	2	2	2	-	2	-	-	2	2	2	-	2	-	1	2	-	2	2	-	2	-	2	2	-	2	2	2	1	-	2	2	2	2	2	1	-	-	2	2	-	2	-	-	2	2	-	2	-	2	2	2	38	10	10	3	10	71

Self-Esteem Inventory Experimental Control Group

Distribution of Scores

ST	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	Factor 1	Factor 2	Factor 3	Factor 4	Total
1	2	2	2	2	2	1	-	2	-	2	2	2	1	2	2	-	-	2	2	-	2	2	2	2	-	2	-	2	2	-	2	-	2	1	2	2	2	-	2	2	-	2	2	2	-	-	2	-	2	2	2	2	2	1	2	26	10	16	5	11	31
2	2	2	2	2	2	1	-	2	2	2	2	-	-	2	2	-	-	2	2	-	2	2	-	2	-	2		-	-	-	2	2	2	1	2	-	2	2	-	-	-	-	2	-	2	2	-	1	-	-	2	2	2	2	2	2	2	12	10	10	6	6	44
3	2	2	2	2	2	1	-	2	2	2	2	2	-	2	2	-	2	2	2	1	2	-	2	2	2	-	-	2	2	-	2	2	-	-	-	2	2	2	2	2	-	-	-	-	2	2	2	-	-	2	2	2	2	2	2	2	42	26	12	2	8	90
4	2	2	2	2	2	1	2	-	2	2	2	2	1	2	2	-	2	2	2	1	2	-	2	2	-	2	-	2	2	2	2	-	2	-	2	2	2	2	2	-	2	2	2	2	2	-	2	2	2	-	2	2	2	2	2	2	2	44	32	16	3	16	31
5	2	2	2	2	2	1	2	2	-	-	2	2	1	2	2	2	-	2	2	1	2	2	2	2	2	2	1	2	2	2	2	-	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	-	2	2	1	2	2	44	14	16	8	16	38
6	2	2	-	2	2	1	2	-	2	2	2	-	-	2	2	-	-	2	2	1	2	-	2	2	2	2	1	2	2	-	2	2	2	2	2	2	2	2	1	2	2	2	-	2	-	2	-	2	-	2	2	2	-	2	2	-	2	2	40	14	16	5	16	31
7	-	-	2	2	2	-	2	2	2	2	2	2	-	2	2	-	-	2	-	-	2	2	2	2	2	-	1	-	2	-	2	2	2	1	2	2	2	-	2	-	1	2	2	-	2	-	2	-	2	-	2	2	2	-	2	2	-	2	-	40	14	12	5	16	33
8	2	2	2	2	2	-	2	2	2	2	2	-	-	2	2	2	-	2	-	1	2	2	2	2	2	2	-	2	2	2	2	2	2	1	2	2	2	2	2	-	1	2	2	2	2	-	2	-	2	2	2	-	2	2	-	-	2	2	40	14	10	3	10	3
9	2	2	2	2	2	1	-	2	2	2	2	2	-	2	2	2	-	2	2	1	2	2	2	2	2	2	-	2	-	-	2	-	2	1	2	2	2	2	2	2	1	2	2	2	2	2	-	-	2	2	-	2	2	1	2	2	2	44	16	12	4	14	34
10	-	-	2	2	2	1	2	2	2	2	2	-	1	2	2	-	2	2	2	1	2	2	-	2	2	2	1	-	2	-	2	-	2	1	-	-	2	2	-	2	-	2	2	2	2	2	2	-	2	2	2	-	2	2	2	2	2	44	14	16	3	14	31
11	2	2	2	-	2	1	2	2	-	2	2	-	1	-	2	2	-	2	2	1	2	2	2	2	-	2	1	-	2	-	2	-	2	-	2	2	2	-	2	2	1	2	2	2	-	2	2	2	-	2	2	2	-	2	2	2	2	2	38	10	14	5	12	29
12	-	2	-	2	2	1	2	-	2	2	2	-	1	2	2	-	-	2	2	1	2	-	2	2	2	2	-	2	2	-	-	-	-	-	2	2	-	2	1	-	-	-	2	-	-	2	-	2	1	2	2	-	2	2	2	2	2	44	10	14	6	12	32
13	2	2	2	2	2	-	2	-	-	-	2	-	1	2	2	-	-	2	2	-	2	2	2	2	2	2	1	-	2	2	2	2	2	1	2	2	2	2	2	1	2	2	1	2	2	-	2	1	2	2	2	-	2	2	-	2	2	22	10	10	5	10	57
14	2	2	2	2	2	1	-	-	2	2	2	-	-	2	2	-	-	2	2	1	2	-	-	2	2	-	-	2	-	-	-	-	-	-	-	-	2	-	2	-	1	-	2	-	2	2	2	-	2	2	2	-	2	2	1	2	2	36	16	14	5	14	85
15	2	2	2	-	2	-	2	-	-	-	2	2	1	2	-	-	2	2	2	1	2	2	2	2	2	-	-	-	2	2	-	2	-	1	-	2	2	-	2	2	1	-	2	2	2	-	2	1	-	2	2	2	2	2	2	28	12	8	3	10	61
16	-	2	2	2	-	-	2	2	2	2	2	2	1	2	2	2	-	2	2	-	2	2	2	2	2	2	1	2	2	2	-	-	-	-	2	2	-	-	2	-	-	2	2	2	2	2	-	2	-	2	1	-	2	2	36	10	12	6	6	70
17	2	2	2	2	2	-	2	2	2	2	2	2	-	2	-	2	-	2	2	1	2	-	2	2	2	-	-	2	2	-	2	-	-	-	2	2	2	2	2	-	2	-	2	2	2	2	2	-	2	2	2	-	-	2	2	36	10	12	3	12	83
18	2	2	2	2	-	-	-	2	-	2	2	-	1	2	2	-	2	2	2	1	2	-	2	2	2	-	-	2	2	2	2	2	2	1	2	2	2	-	2	2	-	2	-	2	2	2	2	-	2	2	2	-	-	2	2	42	12	12	1	14	81
19	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	-	-	2	2	2	1	2	-	2	2	-	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	-	2	2	-	2	2	38	14	10	3	14	78
20	-	2	2	-	2	1	2	-	-	2	2	2	1	2	2	-	-	2	-	1	2	-	2	2	-	2	1	2	2	-	2	-	2	1	-	2	2	2	-	2	1	-	-	-	-	2	2	-	2	2	-	-	-	2	1	2	-	2	26	6	14	7	9	65

Self-Esteem Inventory Control Group
Distribution of Scores

ST	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	1	2	3	4	5	TOTAL
1	2	2	2	2	2	1	-	2	2	-	2	2	1	2	2	-	-	2	2	1	2	2	-	2	2	2	1	-	2	2	2	2	2	1	-	2	2	2	2	2	1	-	2	2	2	2	2	1	2	2	2	-	2	2	-	2	=	2	10	10	10	9	9	97
2	-	2	2	2	2	1	-	2	2	2	2	-	-	2	-	2	-	2	2	1	2	2	2	2	-	2	-	-	2	-	2	-	2	-	2	2	2	-	2	2	1	2	-	-	2	2	2	-	2	2	2	2	-	2	-	2	-	2	10	10	11	11	10	97
3	2	2	2	-	2	1	-	2	-	-	2	-	1	-	-	-	2	2	-	1	2	2	2	2	2	2	-	2	2	2	2	-	2	-	2	2	2	2	2	2	-	2	2	-	2	2	2	-	2	2	2	2	-	2	-	2	-	2	10	10	11	11	10	97
4	2	2	2	2	2	1	-	2	-	2	2	-	-	-	-	2	2	2	-	1	2	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	2	2	2	1	2	2	2	2	-	2	-	2	2	2	2	-	2	-	-	2	2	10	12	12	9	10	97
5	2	2	2	2	2	-	2	2	-	-	2	2	-	2	2	-	-	2	2	1	2	-	2	2	2	2	1	2	2	-	2	-	2	1	2	2	2	2	2	2	1	2	2	2	2	-	2	-	2	2	2	2	-	2	-	2	-	2	16	12	12	9	10	96
6	-	2	2	2	2	1	-	2	-	2	-	2	1	2	-	-	-	2	-	1	2	2	2	2	2	2	1	-	2	2	2	-	2	1	2	-	2	2	2	2	1	2	2	2	-	2	2	1	2	2	2	-	2	2	1	-	2	18	14	16	9	14	97
7	2	2	2	2	2	1	2	-	2	2	2	-	1	2	-	-	2	2	2	-	2	2	2	2	-	-	-	2	-	-	2	2	2	1	2	2	2	-	2	2	-	2	-	2	-	2	2	-	2	2	2	2	-	2	1	2	2	2	12	14	14	9	12	90
8	-	2	-	2	2	-	-	2	2	2	2	-	-	2	2	-	2	2	-	1	2	2	2	2	2	2	1	2	2	-	2	2	2	1	2	2	2	-	2	2	-	2	-	2	-	2	2	-	2	2	2	2	-	-	1	-	-	2	16	12	10	9	11	96
9	-	2	-	-	2	-	2	2	-	2	2	-	-	2	2	-	2	2	2	-	2	2	2	2	-	2	-	2	-	2	-	2	2	-	-	2	-	2	2	2	1	-	2	2	2	2	2	-	2	2	2	-	-	2	-	2	2	2	10	14	10	9	12	92
10	2	2	-	2	2	1	2	2	-	2	2	2	1	2	-	2	-	2	2	1	2	-	2	2	2	-	1	2	2	-	-	-	-	1	-	2	2	-	2	2	1	2	-	-	2	2	2	-	2	-	2	2	2	-	2	-	2	10	8	10	9	10	90
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12	2	2	-	2	2	1	2	-	2	2	-	-	1	-	2	-	2	2	2	1	2	2	2	2	-	2	1	2	2	2	2	2	2	1	-	2	2	-	2	2	1	2	2	2	2	2	2	-	2	2	2	-	2	-	2	2	1	-	2	-	18	12	16	9	11	97
13	-	-	2	2	2	-	-	2	2	2	2	2	1	2	2	2	-	2	2	1	2	2	2	2	2	2	1	2	2	2	-	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	-	2	2	1	-	-	2	10	12	14	7	10	91
14	2	2	2	2	2	1	2	2	-	2	2	-	-	2	2	2	-	-	2	1	2	2	2	2	-	2	-	2	2	2	2	2	2	-	2	2	2	2	2	2	-	2	-	2	-	-	2	-	2	2	2	2	2	1	2	2	2	16	14	16	9	11	97
15	-	2	2	-	2	-	2	-	-	-	2	-	-	2	2	-	-	2	-	1	2	2	2	2	2	2	-	2	2	2	2	-	2	-	-	-	2	2	2	2	1	2	2	2	2	-	2	-	2	2	2	2	-	2	-	2	2	2	14	8	14	9	11	97
16	-	2	2	2	2	1	2	2	-	2	2	2	-	2	2	-	-	2	-	-	2	-	2	2	2	-	-	2	2	-	2	2	2	1	2	2	2	-	-	2	1	2	2	2	2	2	2	-	-	2	2	-	2	2	-	2	-	-	12	14	12	9	11	95
17	2	-	-	2	2	1	2	-	2	-	-	-	1	2	2	-	-	-	-	1	2	2	2	2	2	2	1	2	2	2	2	2	1	-	-	-	-	2	-	1	-	2	-	2	2	2	1	2	2	2	-	2	2	1	-	-	2	16	12	10	8	10	96
18	2	2	2	2	2	1	-	2	2	2	2	2	-	2	2	-	-	2	-	1	2	2	2	2	2	-	-	2	-	-	-	-	2	1	2	-	2	-	2	-	1	-	2	2	2	2	2	-	2	2	2	2	-	-	-	-	2	16	14	8	8	10	92
19	2	2	2	2	2	1	2	-	2	2	2	2	1	2	2	2	2	2	-	1	2	2	2	2	2	-	1	2	2	2	-	2	2	1	2	2	2	2	2	2	-	2	2	2	2	2	2	-	2	2	2	2	2	-	2	2	2	18	16	12	6	16	97
20	2	2	2	2	2	-	2	2	2	2	2	2	-	2	2	2	2	2	2	1	2	-	2	2	2	2	1	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	2	2	2	-	2	2	2	2	2	-	2	2	2	18	16	12	6	16	97
21	2	-	2	2	2	-	2	2	2	2	2	2	1	2	2	-	2	2	2	1	2	2	2	2	2	2	-	2	2	2	2	-	2	1	-	-	2	2	2	2	-	-	-	2	2	2	-	2	2	2	2	2	-	2	2	2	20	16	16	9	16	100
22	-	-	2	2	2	1	2	2	2	2	2	2	1	2	-	-	2	2	2	1	2	2	2	2	2	-	-	2	2	-	2	2	2	1	2	2	2	2	2	2	1	2	2	2	-	2	-	2	1	2	2	2	2	2	1	2	2	2	14	14	14	6	12	97
23	2	2	-	-	2	-	2	-	-	2	2	-	-	2	2	-	2	2	2	-	2	2	2	2	-	2	-	2	2	2	2	-	2	2	-	2	-	-	-	-	-	-	-	-	2	-	2	-	2	2	2	2	2	2	-	2	2	2	18	14	14	6	12	98
24	2	2	2	2	2	1	2	2	-	2	2	2	1	2	2	2	-	2	2	1	2	2	-	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	2	2	-	2	2	2	14	18	12	1	12	97
25	2	2	2	2	2	1	-	-	-	-	2	2	1	2	2	-	-	2	-	1	2	2	2	2	2	2	1	-	2	-	-	-	2	2	2	2	2	2	-	-	-	2	2	2	-	2	1	2	-	2	2	2	2	-	2	2	2	16	16	16	2	16	101
26	2	2	2	2	2	1	-	2	-	-	2	2	1	2	2	-	-	2	-	1	2	-	2	2	2	2	-	2	2	2	2	-	2	2	2	2	2	2	2	1	2	2	-	2	2	2	-	2	2	2	-	2	2	2	-	2	18	12	10	6	8	91

Self Esteem Inventory Control Group
Distribution of Scores (continued)

ST	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	1 Factor	2 Factor	3 Factor	4 Factor	5 Factor	Total
27	2	2	2	2	2	-	2	2	2	2	2	-	-	2	2	2	-	2	-	1	2	2	2	2	2	-	1	2	-	2	2	2	-	2	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	2	2	2	-	2	2	2	16	16	10	3	16	63
28	-	-	-	-	2	1	-	-	2	-	-	-	1	2	2	-	2	2	2	1	2	2	2	2	-	-	1	2	-	-	2	2	-	1	-	2	2	-	-	2	-	-	2	-	2	2	2	-	2	2	-	2	-	-	-	2	2	10	8	8	5	3	5	41
29	2	2	2	2	2	1	2	2	2	2	2	-	1	2	2	-	-	2	2	1	2	-	2	2	-	-	-	2	2	-	2	2	2	1	-	2	2	2	2	2	-	-	-	2	2	-	2	-	-	2	2	-	2	2	-	2	2	2	10	12	12	4	10	68
30	2	-	2	-	2	1	2	2	2	-	2	2	1	2	2	-	-	2	-	1	2	2	2	2	2	2	1	2	2	2	2	-	2	1	2	-	2	2	2	2	1	2	2	2	-	2	2	1	2	2	2	2	2	1	2	2	2	40	12	14	8	16	92
31	2	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	-	1	2	2	-	2	2	2	-	2	2	2	2	-	2	1	2	-	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	2	2	1	2	2	2	40	14	14	7	15	92
32	2	2	2	2	2	1	2	2	2	2	2	-	1	2	2	-	2	2	2	1	2	2	-	2	-	2	-	2	2	2	-	-	2	1	2	2	2	2	2	2	1	2	2	2	2	2	2	-	2	2	2	2	2	1	2	2	2	46	14	14	6	16	94
33	-	-	2	2	2	1	-	2	2	2	2	2	-	2	2	-	-	2	-	1	2	2	2	2	2	-	-	2	2	2	-	-	2	-	-	2	2	2	2	2	1	-	2	2	2	2	2	-	2	2	2	2	-	2	-	2	2	2	42	12	12	3	10	73
34	2	2	2	2	2	-	2	2	2	2	2	2	1	2	2	-	-	2	2	-	2	2	2	2	2	2	-	2	2	-	2	-	2	1	-	2	2	2	2	2	1	2	2	2	2	-	2	-	2	2	2	2	2	-	2	2	2	46	12	16	3	11	91
35	2	2	-	-	-	1	2	2	-	-	-	-	1	2	2	2	-	-	-	1	2	2	2	2	2	2	1	-	2	2	2	-	2	-	-	-	2	2	2	2	1	2	2	2	-	-	2	1	-	2	2	-	2	2	-	2	-	2	46	6	10	6	10	79
36	2	2	2	2	2	1	-	2	2	2	-	-	1	-	-	2	-	2	-	-	2	2	2	2	2	2	-	-	2	2	2	-	2	1	-	-	2	2	2	2	-	2	2	2	2	2	2	-	2	2	-	2	2	1	-	2	2	44	12	12	4	9	98
37	2	2	-	2	2	1	-	-	-	-	2	-	1	2	2	-	-	2	2	1	2	-	2	2	2	-	-	2	2	-	2	-	2	-	2	2	2	2	2	2	1	2	-	2	2	-	2	-	-	2	2	-	2	-	-	-	2	2	32	12	10	4	10	79
38	2	2	2	2	2	1	2	2	-	2	2	2	-	2	-	-	-	2	-	1	2	2	2	2	-	2	-	2	2	2	-	-	2	-	2	2	2	2	2	2	1	2	-	2	2	-	2	-	2	-	2	-	2	2	-	2	2	-	34	10	14	3	14	77

Appendix E

EMOTIONAL SECURITY OF CHILDREN (SUBPROBLEM FIVE)

APPENDIX E

SENTENCE COMPLETION TEST

Oral instructions given to each child :

We are going to play a little game called "Beginnings and Endings." I am going to bring some little stories about you and you are going to finish them.

All the stories are about you and your mother and about you and your teacher. I say the beginning of each story and you tell me the end.

Preliminary Trial

My mother looks after me when I am at .....

My teacher looks after me when I am at.....

NOTE:

Further instructions were given if necessary, and other examples. The actual test was not begun until the investigator was sure that the child understood exactly what he was to do. The full test is given on the next page.

SENTENCE COMPLETION TEST

NAME: _____ AGE: _____ SCHOOL: _____

STANDARD QUESTIONS :

1 (a) When I go into the house my mother.....
.....
(b) When I go into the classroom my teacher.....
.....

2 (a) When I am with my mother I like to.....
.....
(b) When I am with my teacher I like to.....
.....

3 (a) When I am naughty my mother.....
.....
(b) When I am naughty my teacher.....
.....

4 (a) When I say something funny my mother.....
.....
(b) When I say something funny my teacher.....
.....

5 (a) When I cry my mother .....
.....
(b) When I cry my teacher.....
.....

6 (a) When I try to help my mother she says.....
.....
(b) When I try to help my teacher she says.....
.....

7 (a) When I make a mistake accidentally my mother.....
.....
(b) When I make a mistake accidentally my teacher.....
.....

8 (a) When I talk to my mother I tell her about.....
.....
(b) When I talk to my teacher I tell her about.....
.....

9 (a) When I tell someone about my mother I say she is.....
.....

(b) When I tell someone about my teacher I say she is.....
.....

10 (a) When I fight with other children my mother.....
.....

(b) When I fight with other children my teacher.....
.....

Sentence Completion Data: Distribution of Scores

Experimental Group

Student	Boys 1	2	3	4	5	6	7	8	9	10	Student	Girls 1	2	3	4	5	6	7	8	9	10
3	22	22	11	22	02	22	21	22	22	22	1	00	22	11	21	22	12	22	02	20	11
4	22	22	11	22	22	22	11	00	22	11	2	11	20	11	21	12	21	22	00	22	11
6	22	22	11	22	11	11	11	00	22	11	5	22	00	11	22	22	22	22	00	22	11
10	22	22	11	22	22	11	11	00	22	11	7	22	22	11	22	21	22	00	22	22	11
11	21	22	11	22	22	12	22	00	22	12	8	22	22	22	22	22	22	00	00	22	11
13	02	22	11	22	22	12	12	22	22	11	9	22	22	11	22	22	22	11	22	22	11
14	21	22	11	22	22	12	22	22	11	21	12	22	22	11	22	22	22	22	22	22	01
15	22	22	12	22	22	22	22	22	22	11	16	22	22	11	22	22	11	22	22	22	22
18	22	22	11	22	22	11	00	00	22	11	17	22	22	11	22	22	22	22	00	22	21
19	11	22	11	22	11	11	11	22	22	11	21	22	22	11	22	22	11	22	22	22	11
20	20	22	11	21	12	12	10	00	22	01	22	22	22	11	22	02	12	11	00	22	11
23	22	12	11	22	22	22	21	00	22	11											
24	21	22	11	22	22	22	22	02	22	12											

Experimental-Control

Student	Boys										Student	Girls									
	1	2	3	4	5	6	7	8	9	10		1	2	3	4	5	6	7	8	9	10
4	20	22	11	21	22	22	21	00	22	11	1	11	22	11	22	11	22	21	00	22	00
5	20	22	11	22	22	22	22	22	22	11	2	21	22	11	22	22	22	00	00	22	11
6	20	22	11	21	12	12	11	00	22	21	3	22	22	11	22	22	22	22	00	22	12
7	22	22	11	22	22	11	22	22	22	11	11	11	22	21	22	21	22	22	02	22	22
8	22	22	11	22	22	22	11	00	22	21	14	22	22	11	22	22	22	22	00	22	22
9	21	22	11	22	11	12	22	22	22	11	18	22	00	11	22	11	11	22	02	22	22
10	22	20	11	22	12	12	22	00	22	11	20	02	22	11	22	22	22	22	02	22	00
12	22	00	11	22	22	12	22	00	22	11											
13	22	20	11	22	00	12	11	22	22	11											
15	20	22	11	22	22	22	21	22	22	11											
16	22	00	21	22	21	21	11	00	22	11											
17	22	00	11	22	11	22	11	22	00	11											
19	21	22	11	22	22	22	22	02	22	11											

Control Group

Student	Boys										Student	Girls									
	1	2	3	4	5	6	7	8	9	10		1	2	3	4	5	6	7	8	9	10
4	02	22	11	22	22	22	22	22	22	11	1	22	22	11	22	22	22	22	00	22	11
5	20	22	12	22	11	22	22	00	22	22	2	00	00	11	22	22	22	21	02	22	11
6	20	00	11	22	22	22	22	00	22	12	3	21	00	11	21	21	22	22	00	22	21
8	00	22	11	22	22	22	11	22	22	11	7	22	22	11	22	20	22	22	00	22	11
9	22	22	11	22	22	22	11	00	22	22	12	22	20	11	22	22	22	11	22	22	21
10	22	22	11	22	21	22	11	22	22	11	13	11	22	11	22	22	11	11	02	22	11
11	10	20	11	21	22	22	12	02	22	11	16	21	22	11	22	22	12	21	02	22	12
14	22	22	11	22	22	22	22	00	22	11	20	22	22	11	22	22	22	22	00	22	22
15	00	22	11	22	12	22	11	00	22	11	25	22	22	11	22	11	11	22	22	22	11
17	22	12	11	22	22	11	12	00	22	11	26	20	22	11	21	10	22	21	00	22	00
18	00	22	11	22	00	22	10	02	22	00	27	22	22	11	21	20	22	00	02	22	11
19	22	22	11	22	22	22	11	00	22	22	28	11	22	11	22	20	11	11	00	22	22
21	21	22	11	11	20	12	11	22	22	22	31	00	00	11	22	22	22	22	00	22	11
22	12	22	11	22	22	11	11	22	22	11	32	22	22	11	22	22	22	21	02	22	01
23	22	22	11	22	11	22	22	00	22	11	35	20	22	11	22	00	22	11	00	22	00
24	22	22	10	21	00	10	01	00	22	10	38	02	20	11	22	22	12	20	22	22	01
29	20	22	11	21	22	20	21	02	22	21											
30	21	20	11	21	22	11	22	02	22	21											
33	10	00	11	22	22	22	22	00	22	11											
34	22	22	11	22	22	22	21	00	22	21											
36	00	22	11	22	02	12	11	22	22	01											
37	22	22	11	22	22	22	11	00	22	11											

and Mammy are eating ice cream in
he shade

me and my teacher are in Happy land

Appendix F

LEVELS OF ASPIRATION TO SCHOOL TASKS (SUBPROBLEM SIX)

APPENDIX F

Levels of Aspiration (5, 6, and 7 year old children)
Description of Test Procedures

Test situation.

The subject was alone in the interview room with the investigator. Both were seated at a low table containing two peg boards and 2 trays of pegs (red pegs and white pegs).

Directions given to subject by investigator

"This is a game to see how many pegs you can put in the holes before I say 'STOP'. Watch me first. See, they go in like this (illustrates by placing 3 pegs). Now you try a few (subject places a few pegs). Fine. Now when I say 'GO' you put in as many as you can until I say 'STOP'". (20 seconds given, using stop watch, for each trial). After the trial the pegs were counted and recorded, and the board left in front of subject by the investigator, who said, "How many do you think you can put this time? You will have the same amount of time before I say 'STOP'". Subject's reply was recorded.

4 more trials were given using alternate boards.

Each time the same procedure was used.

Levels of Aspiration
Distribution of Scores

Experimental Group - Third Year Students

Pupil	Trial 1	Est	Trial 2	Est	Trial 3	Est	Trial 4	Est	Trial 5
1	9	10	9	9	9	10	10	10	10
2	14	20	14	14	12	12	16	16	14
3	10	10	11	10	11	11	11	11	11
4	11	10	11	11	11	12	11	11	11
5	9	11	11	12	15	14	17	17	16
6	8	9	10	10	9	10	10	9	10
7	10	10	10	10	9	10	11	9	12
8	10	10	11	12	11	10	11	11	11
9	9	10	11	12	13	15	12	13	12
10	11	10	16	13	16	16	18	13	16
11	13	13	[illegible]	12	14	15	15	16	16
12	15	15	14	14	13	14	14	15	18
13	11	12	14	15	14	13	14	14	18
14	12	12	12	10	10	13	15	16	18
15	10	10	10	10	12	12	14	13	11
16	9	9	11	10	11	12	10	9	11
17	15	15	10	10	13	14	12	11	13
18	12	16	9	15	12	10	10	11	13
19	9	10	10	10	10	11	10	10	9
20	10	10	9	9	9	9	10	9	10
21	10	10	10	10	10	10	10	10	10
22	8	8	10	9	11	10	12	11	10
23	7	20	10	11	8	10	11	10	10
24	6	10	10	10	9	10	11	10	9

Experimental Group - Second Year Students

Pupil	Trial 1	Est	Trial 2	Est	Trial 3	Est	Trial 4	Est	Trial 5
1	12	12	11	12	12	13	14	13	18
2	10	10	10	10	9	9	10	10	10
2	11	12	12	12	11	11	10	10	11
4	11	11	10	10	11	11	11	11	12
5	11	11	12	14	12	12	10	13	14
6	8	10	9	11	10	10	8	9	9

First Year Students

1	7	7	8	9	8	9	9	7	8
2	12	12	9	10	11	11	12	12	12
3	8	9	11	11	10	11	11	11	11
4	8	8	10	10	7	8	10	10	10
5	8	10	7	10	9	10	9	10	9

Levels of Aspiration - Distribution of Scores

Experimental-Control: Third Year Students

Pupil	Trial 1	Est	Trial 2	Est	Trial 3	Est	Trial 4	Est	Trial 5
1	10	10	10	10	9	9	8	9	9
2	9	9	11	12	10	10	10	10	10
3	10	10	10	11	3	10	8	10	10
4	7	7	9	8	7	10	7	10	13
5	13	13	14	14	15	16	15	15	15
6	11	12	12	13	10	12	13	14	13
7	12	12	12	14	14	14	12	14	16
8	13	13	12	14	12	12	11	12	10
9	14	16	16	16	14	18	14	18	16
10	11	13	13	13	14	12	16	16	14
11	10	10	10	10	10	10	11	10	12
12	11	11	11	11	11	12	11	12	10
13	12	12	8	10	10	10	10	12	9
14	10	11	10	10	10	9	8	10	10
15	10	10	12	12	12	13	14	14	12
16	10	11	11	13	11	14	10	12	11
17	8	10	11	11	11	12	11	10	12
18	11	11	15	15	14	14	13	14	13
19	12	13	14	15	12	14	15	15	15
20	12	8	13	12	13	13	15	15	12

Levels of Aspiration - Distribution of Scores

Control Group: Third Year Students

Pupil	Trial 1	Est	Trial 2	Est	Trial 3	Est	Trial 4	Est	Trial 5
1	11	11	12	13	14	15	14	15	12
2	12	14	11	12	12	12	13	12	13
3	12	15	15	18	12	18	14	16	15
4	16	17	15	14	16	16	16	16	13
5	12	12	12	12	12	12	13	13	13
6	12	12	12	12	14	12	16	16	13
7	11	11	11	12	12	12	12	13	10
8	10	10	12	13	12	13	14	15	16
9	13	13	14	14	13	13	15	14	15
10	12	12	13	14	14	15	14	16	10
11	10	10	13	13	13	13	14	13	12
12	14	14	18	20	16	18	16	16	20
13	13	14	16	14	16	15	14	17	13
14	13	13	16	17	14	14	14	15	15
15	8	8	10	10	10	10	9	9	9
16	9	9	10	11	10	10	10	10	10
17	11	11	12	13	11	12	12	13	12
18	12	12	16	16	18	19	18	18	14
19	12	13	12	12	18	18	18	16	18
20	13	13	13	13	14	14	13	13	13
21	12	12	12	13	10	12	11	10	12
22	12	12	12	12	11	12	6	11	8
23	10	10	10	10	10	10	10	10	10
24	11	11	12	12	12	11	12	12	10
25	12	12	14	14	13	12	12	14	13
26	11	13	12	12	12	12	10	11	8
27	12	13	13	14	10	14	12	13	13
28	14	16	18	20	16	12	20	21	15
29	9	8	9	9	10	9	9	9	8
30	13	13	12	12	12	13	12	11	14
31	12	14	14	16	13	14	11	12	12
32	10	10	12	11	12	10	12	12	12
33	9	10	12	14	16	16	16	20	14
34	9	9	9	10	11	11	11	10	10
35	12	12	12	11	14	12	12	12	15
36	17	18	17	17	20	20	18	18	20
37	11	11	10	9	11	11	11	11	14
38	11	11	10	10	11	11	13	12	10

Levels of Aspiration - Distribution of Scores

Control Group: Second Year Students

Pupil	Trial 1	Est	Trial 2	Est	Trial 3	Est	Trial 4	Est	Trial 5
1	13	20	12	12	12	13	10	10	12
2	13	14	16	15	12	14	16	15	13
3	10	11	11	10	11	11	10	10	13
4	7	7	8	8	8	7	9	12	8
5	8	10	10	7	10	9	10	9	11
6	10	11	6	10	11	9	9	12	9

Control Group: First Year Students

Pupil	Trial 1	Est	Trial 2	Est	Trial 3	Est	Trial 4	Est	Trial 5
1	10	10	11	12	12	13	12	12	12
2	9	13	8	12	6	12	8	12	9
3	16	19	12	15	16	15	18	18	17
4	11	13	11	12	12	12	10	14	15
5	10	20	10	30	10	11	10	12	12
6	12	12	11	10	13	14	14	15	14

Appendix G

WORKLOAD OF TEACHERS (SUBPROBLEM SEVEN)

APPENDIX G

Teacher Diary

Name _____

School _____

TIME SPENT IN MINUTES (eg. 45 min.)

	A.M.			P.M.	
Pre School	School Time	Recess	Noon Break	School Time	After School

A. PLANNING

(1) Long range objectives

(2) Whole Class activities

(3) Sub-groups

(4) Subject areas

(5) Write-ups plan book

B. PREPARATION

(1) Seat worksheets

(2) Home assignments

(3) Learning games (L.A., Math, etc.)

(4) Construction & setting up learning areas, (library centre, learning centre, etc.)

(5) Duplication (ditto, photocopy, etc.)

(6) Collection of learning support materials for activities (b.board, supplies, pictures, etc.)

(7) Setting up a-v material (recorders, players, etc.)

	A.M.			P.M.		
	Pre School	School Time	Recess	Noon Break	School Time	After School
(8) Returning of learning materials						
(9) Completing chalkboard activities						
(10) Laminating materials						
(11) Collection of material & setting up bulletin board displays						
(12) Collection of material setting up displays, projects, etc.						
(13) Searching & ordering learning materials (supplies, films, other teaching aides)						
(14) Trial testing techniques (art, science, math, etc.)						
(15) Pre-testing for diagnosis and planning activities						
C. EVALUATION						
(1) Correcting daily work (worksheets, seatwork, other assignments)						
(2) Administering tests (informal, unit post-tests etc.						
(3) Scoring & correcting one, two						

	A.M.			P.M.	
	Pre School	School Time	Recess	Noon Break	School Time	After School
D. RECORD KEEPING & REPORTING						
(1) Completing cumulative records and other records						
(2) Writing progress reports and notes to individual parents						
(3) Parent-teacher conferences						
(4) Phone calls to parents						
(5) In-school conferences on children						
(6) Completing attendance registers						
E. MEETINGS						
(1) Staff						
(2) Parent-teacher groups						
(3) School sponsored meetings						
(4) Other specify						
F. SUPERVISION & TUTORIAL						
(1) Tutoring individual or small groups						
(2) Class or school supervision a. voluntary b. school roster						
(3) Accompanying children on special events						

	Pre School	School Time	Recess	Room Break	School Time	After School
(4) Accompanying children home						

G. PROFESSIONAL DEVELOPMENT REQUIRED BY TEACHING ASSIGNMENT -do not include activities of personal interest

(1) Formal courses

(2) Workshops (voluntary)

(3) In-service (school based)

(4) In-service (school focused)

(5) Professional reading

(6) Other (specify)

H. OTHER

(1) responding to office memos

(2) Cleaning (tidy-ups, etc.)

(3) Any not included

a.

b.

c.

d:

Teacher Diary

Average Time Per Teacher (minutes per week)

Experimental Group

	School Time	After School	Total
A. PLANNING			
(1) Long range objectives		33.33	33.33
(2) Whole Class activities		43.67	43.67
(3) Sub-groups	3.33	21.67	25.00
(4) Subject areas	0.83	50.83	51.66
(5) Write-ups plan book		65.00	65.00
B. PREPARATION			
(1) Seat Worksheets	1.67	20.00	21.67
(2) Home assignments			
(3) Learning games (L.A., Math, etc.)			
(4) Construction & setting up learning areas (library centre, learning centre, etc.)		8.33	8.33
(5) Duplication (ditto, photocopy, etc.)		19.67	19.67
(6) Collection of learning support materials for activities (b.Board, supplies, pictures, etc.)		19.17	19.17
(7) Setting up a-v material (recorders, players, etc.)	1.67	2.50	4.17
(8) Returning of learning materials	.83	3.83	4.66

	School Time	After School	Total
B. PREPARATION			
(9) Completing chalkboard activities	4.17	8.33	12.50
(10) Laminating materials			
(11) Colection of material & setting up bulletin board displays	3.33	11.67	15.00
(12) Collection of material & setting of displays, projects, etc.		50.83	50.83
(13) Searching & ordering learning materials (supplies, films, other teaching aides)		1.67	1.67
(14) Trial testing techniques (art, science, math, etc.)			
(15) Pre-testing techniques and planning activities			
C. EVALUATION			
(1) Correcting daily work (worksheets, seatwork, other assignments)		169.17	169.17
(2) Administering tests (informal, unit past-tests etc.		2.50	2.50
(3) Scoring & correcting one, two	1.67		1.67

	School Time	After School	Total
D. RECORD KEEPING & REPORTING			
(1) Completing cumulative records and other records		42.50	42.50
(2) Writing progress reports and notes to individual parents		325.00	325.00
(3) Parent-teacher conferences	0.83	9.17	10.00
(4) Phone calls to parents		4.67	4.67
(5) In-school conferences on children		0.50	0.50
(6) Completing attendance registers	10.00	5.00	15.00
E. MEETINGS			
(1) Staff		74.17	74.17
(2) Parent-teacher groups	5.00	11.67	16.67
(3) School sponsored meetings		63.33	63.33
(4) Other specify		70.00	70.00
F. SUPERVISION & TUTORIAL			
(1) Tutoring individual or small groups	2.50	15.00	17.50
(2) Class or school supervision a. voluntary b. school roster		25.00	25.00
(3) Accompanying children on special events			
(4) Accompanying children home			

	School Time	After School	Total
G. PROFESSIONAL DEVELOPMENT REQUIRED BY TEACHING ASSIGNMENT -do not include activities of personal interest			
(1) Formal courses		210	210
(2) Workshops (voluntary)			
(3) In-service (school based)			
(4) In-service (school focused)			
(5) Professional reading			
(6) Other (specify)			
H. OTHER			
(1) responding to office memos	1.67	3.33	5
(2) Cleaning (tidy-ups, etc.)		55.5	55.5
(3) Any not included			
a.		79.17	79.17
b.			
c.			
d.			

Teacher Diary

Average Time Per Teacher (minutes per week)

Experimental-Control Group

	School Time	After School	Total
A. PLANNING			
(1) Long range objectives			
(2) Whole Class activities		27.50	27.50
(3) Sub-groups		10.00	10.00
(4) Subject areas			
(5) Write-ups plan book		130.00	130.00
B. PREPARATION			
(1) Seat Worksheets		27.50	27.50
(2) Home assignments		5.00	5.00
(3) Learning games (L.A., Math, etc.)		5.00	5.00
(4) Construction & setting up learning areas (library centre, learning centre, etc.)			
(5) Duplication (ditto, photocopy, etc.)		12.50	12.50
(6) Collection of learning support materials for activities (b.Board, supplies, pictures, etc.)	7.50	2.50	10.00
(7) Setting up a-v material (recorders, players, etc.)	2.50	2.50	5.00
(8) Returning of learning materials	12.50	7.50	20.00

	School Time	After School	Total
B. PREPARATION			
(9) Completing chalkboard activities	10.00		10.00
(10) Laminating materials			
(11) Colection of material & setting up bulletin board displays	5.00	37.50	42.50
(12) Collection of material & setting of displays, projects, etc.	5.00	5.00	10.00
(13) Searching & ordering learning materials (supplies, films, other teaching aides)			
(14) Trial testing techniques (art, science, math, etc.)			
(15) Pre-teating for diagnosis and planning activities			
C. EVALUATION			
(1) Correcting daily work (worksheets, seatwork, other assignments)		60.00	60.00
(2) Administering tests (informal, unit past-tests etc.	32.50		32.50
(3) Scoring & correcting one, two			

	School Time	After School	Total
D. RECORD KEEPING & REPORTING			
(1) Completing cumulative records and other records	15.00	160.00	175.00
(2) Writing progress reports and notes to individual parents		215.00	215.00
(3) Parent-teacher conferences			
(4) Phone calls to parents		25.00	25.00
(5) In-school conferences on children		10.00	10.00
(6) Completing attendance registers	5.00	7.50	12.50
E. MEETINGS			
(1) Staff		36.00	36.00
(2) Parent-teacher groups			
(3) School sponsored meetings			
(4) Other specify			
F. SUPERVISION & TUTORIAL			
(1) Tutoring individual or small groups	20.00	12.50	32.50
(2) Class or school supervision a. voluntary b. school roster		115.50	115.50
(3) Accompanying children on special events		150.00	150.00
(4) Accompanying children home			

	School Time	After School	Total
G. PROFESSIONAL DEVELOPMENT REQUIRED BY TEACHING ASSIGNMENT -do not include activities of personal interest			
(1) Formal courses		270.00	270.00
(2) Workshops (voluntary)			
(3) In-service (school based)			
(4) In-service (school focused)			
(5) Professional reading			
(6) Other (specify)			
H. OTHER			
(1) responding to office memos	5.00	5.00	10.00
(2) Cleaning (tidy-ups, etc.)	10.00	37.50	47.50
(3) Any not included			
a.	5.00	60.00	65.00
b.			
c.			
d.			

Teacher Diary

Average Time Per Teacher (minutes per week)

Control Group

	School Time	After School	Total
A. PLANNING			
(1) Long range objectives			
(2) Whole Class activities		55.00	55.00
(3) Sub-groups			
(4) Subject areas		5.00	5.00
(5) Write-ups plan book		46.75	46.75
B. PREPARATION			
(1) Seat Worksheets		8.75	8.75
(2) Home assignments	6.25		6.25
(3) Learning games (L.A., Math, etc.)			
(4) Construction & setting up learning areas (library centre, learning centre, etc.)			
(5) Duplication (ditto, photocopy, etc.)	1.25	6.75	8.00
(6) Collection of learning support materials for activities (b.Board, supplies, pictures, etc.)	5.00	2.50	7.50
(7) Setting up a-v material (recorders, players, etc.)	12.50		12.50
(8) Returning of learning materials	1.75		1.75

	School Time	After School	Total
B. PREPARATION			
(9) Completing chalkboard activities	13.75	5.00	18.75
(10) Laminating materials			
(11) Colection of material & setting up bulletin board displays			
(12) Collection of material & setting up displays, projects, etc.	5.00	8.75	13.75
(13) Searching & ordering learning materials (suplies, films, other teaching aides)			
(14) Trial testing techniques (art, science, math, etc.)			
(15) Pre-teating for diagnosis and planning activities			
C. EVALUATION			
(1) Correcting daily work (worksheets, seatwork, other assignments)	68.75	32.50	101.25
(2) Administering tests (informal, unit past-tests etc.			
(3) Scoring & correcting one, two			

	School Time	After School	Total
D. RECORD KEEPING & REPORTING			
(1) Completing cumulative records and other records	52.50	22.50	75.00
(2) Writing progress reports and notes to individual parents		142.50	142.50
(3) Parent-teacher conferences	2.50		2.50
(4) Phone calls to parents		0.50	0.50
(5) In-school conferences on children	1.25	7.00	8.25
(6) Completing attendance registers	3.75	2.75	6.50
E. MEETINGS			
(1) Staff		27.50	27.50
(2) Parent-teacher groups			
(3) School sponsored meetings			
(4) Other specify			
F. SUPERVISION & TUTORIAL			
(1) Tutoring individual or small groups	23.75		23.75
(2) Class or school supervision a. voluntary b. school roster		93.75	93.75
(3) Accompanying children on special events	75.00		75.00
(4) Accompanying children home			

	School Time	After School	Total
G. PROFESSIONAL DEVELOPMENT REQUIRED BY TEACHING ASSIGNMENT -do not include activities of personal interest			
(1) Formal courses			45.00
(2) Workshops (voluntary)			
(3) In-service (school based)			
(4) In-service (school focused)			
(5) Professional reading	2.50	20.75	23.25
(6) Other (specify)			
H. OTHER			
(1) responding to office memos		12.50	12.50
(2) Cleaning (tidy-ups, etc.)	1.25	43.75	45.00
(3) Any not included			
a.		1.75	1.75
b.			
c.			
d.			

Appendix H

SOCIAL STRUCTURE OF CLASSES (SUBPROBLEM EIGHT)

APPENDIX H
Sociometrics of Classroom
Instructions to Teachers

For each child have one sheet on which is recorded:

Name _____ Teacher Name _____

Age _____

1.

2.

3.

Questions.

1. Put down the name of the person in your class you like most to sit beside. Who do you like best to sit beside?

2. Put down the name of the person in your class you like best to work with (math, reading etc.). Who do you like best to work with?

3. Put down the name of the person you like best to play outdoors with. Who do you like best to play outdoors with?

If child selected is from another class please indicate this.

Developing the Sociographs (adapted from Clark, 1970)

For each class the selections of each child were tabulated. The children were grouped males and females. The children then received numbers as their codes. Those children receiving the highest number of selections in the three questions were given the lowest number as a code for the respective groups of males and females.

The number codes were then placed on the left vertical axis and also on the top horizontal axis. By such a placement the diagonal passes through the cell representing the child's selection of himself. Beginnning at the upper left and working to the right of the horizontal axis, each child's selections were plotted downwards.

For the vertically grouped classes a double separation was made by sex and age, so that squares on the graphs represent the first, second and third year children.

Frequencies of Selection in Sociometric Studies
Composite Three Question Technique N = 130

Group	E	Ex-C	C
No. selections drawn			
0	8	4	9
1	13	4	10
2	15	2	1
3	14	2	7
4	11	1	5
5	3	2	1
6	3	0	2
7	2	4	0
8	1	0	2
9	1	0	0
10	1	0	0
11	0	0	1
12	0	0	0
13	0	0	1
Totals	72	19	39

chi-square = 23.6618

df = 24 chi-square = 20.3764

chi-square = 29.2555

Scales and Reliabilities of the My Class Inventory

		Individual Reliability
Satisfaction	1, 7, 11*, 16, 21,27*, 31, 36*, 43	.77
Friction	2, 6, 13, 17, 22, 26, 32, 27, 41*	.70
Competitiveness	3, 8, 12, 18, 25*, 30, 35, 39, 42	.56
Difficulty	4, 10*, 14, 20*, 24, 29, 34*, 40, 44	.56
Cohesiveness	5, 9, 15, 19, 23, 28, 33, 38, 45	.54

Note: Score: (yes = 3; no = 1). Items with an asterisk must have their plarities reversed; ie., yes = 1, no = 3.

Reliability based on data from 655 subjects, 1969.

my class

NAME _____

AGE _____

DIRECTIONS

This is not a test. The questions inside are to find out what your class is like. Please answer all the questions.

Each sentence is meant to describe your class. If you agree with the sentence circle yes. If you don't agree with the sentence, circle no.

Example

	Circle Your Answer	
1. Most children in the class are good friends.	Yes	No

If you think that most children in the class are good friends, circle the yes like this:

1. Most children in the class are good friends.	(Yes)	No

If you do not think that most children in the class are good friends, circle the no like this:

1. Most children in the class are good friends.	Yes	(No)

Now turn the page and answer all the questions about your class.

	Circle Your Answer	
1. The pupils enjoy their schoolwork in my class.	Yes	No
2. Children are always fighting with each other.	Yes	No
3. The same people always do the best work in our class.	Yes	No
4. In our class the work is hard to do.	Yes	No
5. My best friends are in my class.	Yes	No
6. Some of the children in our class are mean.	Yes	No
7. Most pupils are pleased with the class.	Yes	No
8. Children often race to see who can finish first.	Yes	No
9. Many children in the class play together after school.	Yes	No
10. Most children can do their schoolwork without help.	Yes	No
11. Some pupils don't like the class.	Yes	No
12. Most children want their work to be better than their friend's work.	Yes	No
13. Many children in our class like to fight.	Yes	No
14. Only the smart people can do the work in our class.	Yes	No
15. In my class everybody is my friend.	Yes	No

	Circle Your Answer	
16. Most of the children in my class enjoy school.	Yes	No
17. Some pupils don't like other pupils.	Yes	No
18. Some pupils feel bad when they do not do as well as the others.	Yes	No
19. In my class I like to work with others.	Yes	No
20. In our class all the pupils know how to do their schoolwork.	Yes	No
21. Most children say the class is fun.	Yes	No
22. Some people in my class are not my friends.	Yes	No
23. Children have secrets with other children in the class.	Yes	No
24. Children often find their work hard.	Yes	No
25. Most children don't care who finishes first.	Yes	No
26. Some children don't like other children.	Yes	No
27. Some pupils are not happy in class.	Yes	No
28. All of the children know each other well.	Yes	No
29. Only the smart pupils can do their work.	Yes	No
30. Some pupils always try to do their work better than the others.	Yes	No

	Circle Your Answer	
31. Children seem to like the class.	Yes	No
32. Certain pupils always want to have their own way.	Yes	No
33. All pupils in my class are close friends.	Yes	No
34. Many pupils in our class say that school is easy.	Yes	No
35. In our class some pupils always want to do best.	Yes	No
36. Some of the pupils don't like the class.	Yes	No
37. Children in our class fight a lot.	Yes	No
38. All of the pupils in my class like one another.	Yes	No
39. Some pupils always do better than the rest of the class.	Yes	No
40. Schoolwork is hard to do.	Yes	No
41. Certain pupils don't like what other pupils do.	Yes	No
42. A few children in my class want to be first all of the time.	Yes	No
43. The class is fun.	Yes	No
44. Most of the pupils in my class know how to do their work.	Yes	No
45. Children in our class like each other as friends.	Yes	No

This instrument was developed at Harvard University by Gary J. Anderson and Herbert J. Walberg, May 1968. Revised, January 1969, by G.J.Anderson and Ronald E. Cayne, Faculty of Education, McGill University.

MY CLASS INVENTORY Experimental Group

Students	1	2	3	4	5	6	7	8	9	10*	11	12	13	14	15	16	17	18	19	20*	21	22	23	24	25*	26	27	28	29	30	31	32	33	34*	35	36	37	38	39	40	41	42	43	44*	45	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Total
1	3	1	3	3	3	1	3	3	1	1	3	1	1	3	3	3	1	3	3	3	3	1	1	3	3	1	1	3	1	1	3	1	3	1	1	1	1	3	3	3	3	3	3	3	3	33	11	21	21	23	99
2	3	1	3	3	3	1	3	3	1	3	3	1	1	3	3	3	1	3	3	3	3	1	1	3	3	1	3	1	3	1	3	1	3	3	3	3	1	3	3	1	3	3	3	1	3	27	10	23	23	21	104
3	3	1	3	3	3	1	3	3	3	1	1	1	1	3	3	3	3	1	3	1	3	3	3	3	3	3	1	3	3	1	3	1	3	3	3	1	1	3	1	3	1	1	3	1	3	21	15	17	21	27	101
4	3	1	3	3	3	1	3	1	1	1	3	3	3	3	3	3	3	3	3	1	3	1	3	3	3	3	3	3	3	1	3	1	3	3	3	1	1	3	3	1	1	3	3	1	3	25	15	23	19	26	108
5	3	1	3	3	3	3	3	3	3	1	3	3	3	3	3	3	1	1	3	1	3	1	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	1	3	3	1	3	27	17	25	21	27	117
6	3	1	1	3	3	1	3	3	1	1	3	3	1	1	3	3	3	1	3	1	3	1	3	3	1	3	3	3	3	3	3	3	1	3	3	3	1	3	3	1	1	3	3	1	3	27	15	21	17	23	103
7	3	1	3	3	1	3	3	1	3	1	3	1	1	3	1	3	3	1	3	1	1	3	3	1	1	3	1	3	3	1	3	1	1	3	3	3	3	1	3	3	1	3	3	1	3	23	19	17	19	19	99
8	3	1	3	1	3	3	3	3	3	1	3	1	1	1	3	3	1	3	3	3	3	1	1	3	1	3	3	3	3	1	3	3	3	3	3	1	3	3	3	3	1	3	3	1	3	25	17	21	19	25	107
9	3	3	3	3	3	1	3	3	–	1	3	1	1	3	3	3	1	1	3	1	3	1	3	3	1	1	1	3	3	1	3	1	3	1	1	3	3	3	3	1	3	3	3	1	3	25	15	17	17	21	95
10	3	1	1	1	3	1	3	3	3	1	3	1	1	1	3	3	1	3	3	1	3	1	3	1	3	1	3	3	1	1	3	3	1	1	1	3	1	3	1	1	3	3	3	1	3	27	13	17	9	25	91
11	3	1	3	3	3	3	1	1	3	1	1	1	1	3	3	3	3	1	3	1	1	1	3	3	1	3	1	3	1	1	3	1	3	1	1	1	1	3	3	3	1	3	3	1	3	27	15	15	17	27	91
12	3	1	3	3	3	3	1	1	3	1	1	1	3	3	1	3	3	1	3	1	3	1	1	3	1	3	1	3	3	1	3	1	3	1	1	1	1	3	3	3	1	3	3	1	3	19	17	15	19	23	93
13	3	3	1	3	3	1	3	3	3	1	1	1	3	3	1	3	3	3	3	3	1	3	3	3	1	1	1	3	3	3	1	3	1	3	3	1	3	1	3	1	1	3	1	1	1	15	21	21	21	19	97
14	3	3	1	1	3	1	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	1	3	3	3	1	1	1	3	3	1	3	3	3	3	25	19	23	25	23	115
15	3	3	1	3	3	3	3	3	3	3	1	3	3	3	1	3	3	1	3	3	3	3	1	3	1	3	3	3	1	3	3	3	3	3	3	1	1	1	1	3	3	3	3	1	3	23	25	19	23	21	1[illegible]
16	3	1	3	1	3	1	3	1	1	1	1	3	1	1	3	3	1	3	3	3	3	3	3	1	1	1	1	3	1	3	3	1	3	3	1	1	1	3	3	1	3	3	3	1	3	21	13	21	13	25	93
17	3	1	1	1	3	1	3	3	3	1	3	1	1	1	3	3	1	3	3	1	3	1	1	1	3	1	1	3	1	3	3	1	3	3	3	3	1	3	3	3	1	3	3	1	3	5	9	23	11	25	9[illegible]
18	1	3	1	1	3	3	3	3	1	1	3	3	3	1	1	3	3	3	3	3	3	3	3	3	1	3	1	3	1	3	3	3	3	3	3	3	3	3	1	1	1	3	3	1	3	13	25	21	17	23	1[illegible]
19	1	3	3	1	1	3	1	3	3	1	3	3	3	1	3	3	3	3	3	3	3	1	3	1	1	3	1	3	1	1	3	3	3	1	3	3	3	3	1	1	3	3	3	1	3	1	25	21	11	25	1[illegible]
20	3	1	1	3	3	1	3	1	3	3	3	1	1	1	1	3	1	3	3	3	1	1	3	3	3	3	1	3	1	1	1	1	1	3	3	3	1	3	1	1	1	3	3	3	3	11	11	17	21	23	9[illegible]
21	3	3	3	3	3	3	3	3	3	1	3	1	1	3	3	3	1	1	1	1	1	1	3	3	3	1	1	3	1	3	1	3	3	3	3	1	1	1	3	1	1	3	3	3	1	9	15	23	19	21	[illegible]
22	3	1	1	3	3	1	3	1	3	1	3	1	1	3	3	3	1	3	3	1	3	3	3	3	3	1	1	3	3	1	3	1	3	1	1	3	1	3	3	1	1	3	3	1	3	25	11	17	17	27	
23	3	1	1	3	3	1	3	1	3	3	3	1	1	1	3	3	1	1	3	1	3	1	1	1	1	1	3	3	1	3	3	1	3	1	1	3	1	3	1	1	1	1	3	1	3	27	9	11	11	25	
24	3	3	3	3	3	3	3	3	3	1	1	1	1	3	3	3	3	3	3	3	3	1	3	3	1	3	3	3	1	3	3	3	3	3	1	1	3	3	3	3	3	3	3	1	3	23	23	21	17	27	1[illegible]
25	3	3	3	3	3	3	3	3	3	1	3	1	1	3	3	3	1	3	3	3	3	1	3	3	1	3	1	3	3	3	3	3	3	1	3	1	3	3	3		3	3	3	1	3	23	19	23	21	27	1[illegible]

Experimental - Control Group

Students	1	2	3	4	5	6	7	8	9	10*	11	12	13	14	15	16	17	18	19	20*	21	22	23	24	25*	26	27	28	29	30	31	32	33	34*	35	36	37	38	39	40	41	42	43	44*	45	Factor	Factor	Factor	Factor	Factor	Total
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6	3	1	1	1	3	1	3	1	1	3	3	3	1	1	3	3	1	3	3	3	3	1	3	3	1	3	3	3	1	1	3	1	3	3	3	3	1	1	1	3	1	1	3	1	3	27	11	15	19	23	95
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9	3	1	3	1	3	1	3	3	3	1	3	1	1	1	3	3	3	1	3	1	3	3	3	3	3	3	3	3	1	3	3	3	1	1	3	1	1	1	3	1	3	1	3	1	3	25	19	21	11	21	[illegible]
10	3	1	1	3	3	3	3	3	3	3	3	1	1	3	3	3	3	3	3	1	3	1	3	3	1	3	3	3	1	3	3	3	3	3	3	3	1	3	3	3	3	3	3	1	3	27	19	19	23	27	11[illegible]
11	3	1	1	1	3	1	3	3	3	1	3	3	1	3	3	3	1	3	3	1	3	1	3	3	3	1	3	3	3	3	3	3	3	3	3	3	1	3	3	3	1	1	3	1	3	27	11	23	19	27	10[illegible]
12	3	1	3	3	3	1	3	1	3	1	3	1	1	3	3	3	1	3	3	1	3	3	3	3	3	3	1	1	1	1	3	1	3	3	3	3	1	3	3	3	1	3	3	1	3	25	13	21	21	27	10[illegible]
13	3	1	1	1	3	1	3	1	3	1	3	1	1	1	1	3	3	1	3	3	1	3	3	3	1	3	1	3	1	3	3	3	3	3	3	3	3	1	1	3	3	3	3	1	3	23	21	15	17	23	[illegible]
14	1	3	1	3	3	3	3	3	1	3	3	3	3	3	1	3	1	3	1	1	3	1	3	1	3	1	3	3	3	3	3	3	3	3	1	3	3	3	3	3	3	1	1	3	15	27	23	19	25	103
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16	3	1	1	1	3	3	3	3	3	1	3	3	1	1	1	3	3	3	3	1	3	3	3	3	3	1	3	3	1	3	3	3	3	1	1	3	1	3	3	1	3	3	3	1	3	27	19	23	11	25	105
17	3	3	1	3	1	1	3	3	3	1	3	3	3	3	3	3	3	3	3	1	3	3	3	3	1	3	1	3	3	3	3	3	3	1	3	3	3	3	3	3	3	3	3	1	3	25	25	24	19	25	119
18	[illegible]	1	3	1	3	1	3	1	3	3	1	3	1	3	3	3	1	1	3	3	3	3	1	1	3	3	3	3	3	1	3	1	3	3	1	1	1	3	1	1	1	3	3	3	1	23	13	17	21	23	[illegible]
19	3	1	1	1	3	1	3	1	1	1	3	3	1	3	1	3	1	3	3	1	3	3	1	1	3	3	1	3	3	1	3	1	3	1	3	1	3	3	1	1	3	3	3	1	3	23	17	19	13	21	[illegible]

My Class Inventory (Control Group)

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8	3	1	1	3	1	1	3	3	3	1	1	1	1	3	3	1	3	3	3	3	3	3	3	1	1	3	1	3	3	1	3	3	1	3	3	3	1	3	1	1	1	1	1	1	1	19	21	19	21	23	104
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16	3	1	3	1	3	1	3	1	3	1	3	1	3	3	3	3	3	3	1	3	1	3	3	1	3	1	1	3	1	1	1	1	3	1	1	1	3	1	1	1	1	1	1	1	3	25	1	19	19	27	81
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21	3	1	3	1	1	1	3	3	1	1	3	3	1	1	3	3	3	3	3	1	3	1	3	1	3	1	1	3	1	1	1	3	1	1	1	3	3	3	3	1	3	3	1	1	3	27	21	27	17	25	111
22	3	1	1	1	1	1	1	1	1	1	3	3	1	1	1	3	3	3	1	3	3	3	1	1	1	1	3	3	1	1	2	1	1	1	3	3	1	1	1	1	1	1	1	1	1	22	21	21	11	17	110
23	3	1	1	1	1	1	1	1	3	1	1	3	1	3	3	3	1	1	3	1	3	1	3	3	1	1	3	3	1	1	1	1	3	1	1	1	1	3	1	1	1	3	1	1	1	25	1	17	11	27	91
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My Class Inventory (Control Group) Continued

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01	3	1	3	1	1	3	1	1	3	1	3	3	1	1	3	1	1	1	1	1	1	3	3	1	3	3	1	3	1	3	3	3	3	1	3	3	1	3	3	1	1	1	1	1	21	19	23	0	23
02	3	1	3	1	3	3	3	3	1	3	3	1	1	3	3	1	1	3	3	1	3	1	3	3	1	1	1	3	3	3	3	3	3	1	3	3	1	3	3	1	1	1	1	1	25	15	27	17	22
03	3	1	3	3	1	3	1	3	3	1	1	1	1	1	1	1	1	1	3	3	1	1	3	1	1	1	3	1	1	3	3	3	3	1	3	3	1	3	3	3	1	1	1	1	19	23	21	19	22
04	3	1	3	1	3	3	3	3	3	1	1	3	1	1	3	1	1	3	1	1	1	3	1	1	1	1	1	3	1	3	3	1	3	3	3	3	1	3	3	1	1	1	1	1	23	17	27	17	22
05	3	1	1	3	3	3	3	1	3	1	1	3	1	1	1	3	3	3	3	1	1	1	3	1	1	1	1	3	3	3	3	3	3	1	3	1	3	1	3	1	1	1	1	1	1	15	13	17	16
06	1	1	3	1	3	3	1	3	3	1	1	1	3	3	1	1	3	3	1	1	1	1	3	1	1	1	1	1	3	2	1	2	1	2	3	1	3	1	3	1	1	1	1	1	1	1		18	1	9
07	3	1	3	1	3	3	1	3	3	1	1	3	3	3	1	3	3	3	3	3	1	3	3	1	1	1	1	1	3	3	3	1	3	1	3	1	1	3	1	1	1	1	1	1	1	2	27	1	11
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09	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	3	1	3	3	1	1	3	1	1	1	1	1	1	2	3	3	1	1	3	1	1	1	1	1	1	1	1	1	1	1	15	15	1

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Appendix I

REACTIONS OF PARENTS (SUBPROBLEM TWELVE)

PARENT OPINION INVENTORY

PART A

Please read each item carefully. Note that there are five responses below each item. Select the responses which most clearly represents your feelings, and circle the letter immediately to the left of the response selected.

EXAMPLE: Our School maintained high standards in the primary grades.
A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
E. Strongly Disagree.

1. Children in the primary grades, P,1,2) were generally respectful of each other.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

2. Most students and teachers in the primary grades (P,1,2) maintainted good working relationships.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

3. Reports from our school concerning children's progress in the primary grades (P,1,2) was adequate.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

4. Parents of children in primary grades (P,1,2) were informed about educational practices in our school.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

5. Our school did a good job in teaching the basic skills (math, science, reading).
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

6. The primary program helped children to understand and get along with other people.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

7. Disipline was not a serious problem in the primary grades (P,1,2).
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

8. The total educational program offered in our primary grades (P,1,2) was of high quality.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

9. Our school did a good job of providing children in the primary grades (P,1,2) to reach full potential.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

10. The teachers in the primary grades (P,1,2) were generally highly competent.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

11. Acceptable emphasis was placed on the social developoment of children in the primary grades (P,1,2).
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

12. My child looked forward to going to school each day in the primary grades (P,1,2).
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

13. Teachers in the primary grades were concerned about my child as an individual.
   A. Strongly Agree. B. Agree. C. No Opinion. D. Disagree.
   E. Strongly Disagree.

PARENT OPINION INVENTORY

PART B

Please answer the following questions.

1. Did you request to have your child placed in vertically grouped classes?

   Yes _____ No _____

   Please comment: _____

2. Did you at any time consider having your child removed from the vertically grouped classes?

   Yes _____ No _____

   Please comment: _____

3. Have you any regrets that your child attended vertically grouped classes in the first few years of school?

   Yes _____ No _____

   Please comment: _____

4. What do you consider the advantages for your child of vertically grouped classes?

_____

_____

_____

What are the disadvantages? _____

_____

_____

G.F.F. 1984

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