INTERNAL-EXTERNAL LOCUS OF CONTROL
AND CHILDREN'S PERCEPTIONS OF
THEIR FAMILY ENVIRONMENT

by

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ABSTRACT

The relationship between locus of control orientation and children's perception of their family environment was investigated by having 207 grade eight students (86 males and 121 females) complete the Family Environment Scale and the Nowicki-Strickland internal-external control scale. Children with high internal control saw their families as being more cohesive, more expressive, encouraging more independence, having a higher level of achievement orientation, a greater interest in intellectual-cultural activities, a greater interest in active-recreational activities, more interested in moral-religious issues and values, more organized, and experiencing less conflict and control in their family relationships than the children with high external control. These findings were consistent across sex, with one exception; male children perceived a higher level of moral-religious emphasis in their families than did female children. A significant interaction between locus of control and subject gender was found for the subscale intellectual-cultural orientation. Internal males perceived a higher level of intellectual-cultural orientation in their families than did external males, while internal and external females perceived a similar level of intellectual-cultural orientation in their families. These findings produced an interaction between locus of control and subject gender. The findings were discussed, summarized and suggestions for further research were presented.
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CHAPTER I

INTRODUCTION AND BACKGROUND TO THIS STUDY

The year 1980 was declared the Year of the Child and Family in British Columbia. Over the past twenty years there has been a rapidly increasing interest in the family's influence in shaping the developing child [Glick S Haley, 1971; Olson S Dahl, 1977]. Much of the interest in the family's influence on personality development has stemmed from the widely held belief that the family is the most influential learning component of a child's development [Christensen, 1964; Jackson, 1965].

Theoretical interest in the family could probably be traced back to before the beginning of psychoanalysis when Freud made his original formulations about the part parents played in "causing" emotional illness. Since that time the interest in family dynamics has been increasing. Much of the current interest in understanding the family's influence on child development stems from the belief that many emotional problems are rooted in the context of one's family environment [Bowen, 1978].

In the early 1950's efforts were begun to involve the family in treatment [Bateson, Jackson, Haley, S Weakland, 1956; Jackson, 1959; Lidz & Fleck, 1960]. There was a sudden increase in family research in order to further understand family dynamics. Researchers have had a variety of purposes or specific questions for which they
sought answers.

Several researchers have primarily focussed on developing methodologies for studying family interaction [Mishler & Waxler, 1968; Riskin & Faunce, 1970]. Others have studied the relationship between the 'family-as-a-unit' and the 'individual-as-a-unit' [Bauman & Roman, 1966; Reiss, 1967]. Still others have concentrated on the 'family-as-a-system' [Haley, 1962; Jackson, 1965]. Others have wanted to evaluate the effectiveness of therapy by focussing on changes in family interaction patterns [Haley, 1964; Lennard & Bernstein, 1969].

Further examples of diverse research interests include: a focus on husband-wife dominance [Bauman & Roman, 1966]; an interest in cross-cultural family research [Straus, 1968]; an interest in family decision-making [Ferreira & Winter, 1968]; an interest in studying the family's contribution to the etiology of schizophrenia [Wynne & Singer, 1963]; an interest in studying the family's contribution to other behaviour problems in children [Goldstein, Judd, Rodnick, Alkire, & Gould, 1968; Hetherington, Stouwie, & Ridberg, 1971]; an interest in family roles and functions [Strodtbeck, 1954]; and an interest in conflict resolution in the family [Goodrich & Boomer, 1963; Olson & Ryder, 1970].

Although everyone agrees that the family environment is crucial in shaping the developing child, relatively few studies have investigated the relationship between the
personality construct, locus of control, and children's perceptions of their family environment. Thus the major interest of this study was to investigate the relationship between internal-external locus of control orientation and children's perceptions of their family environment.

Interest in studying the personality dimension locus of control has been increasing during the last twenty years [Kennelly & Kinley, 1975; Lefcourt, 1966; Nowicki & Schneewind, 1977; Rotter, Seeman, & Liverant, 1962]. Locus of control is a construct generated within Rotter's social learning theory, and refers to the extent to which an individual perceives events in his/her life as being a consequence of his/her own behaviour and thus under personal control. Certain people believe that their behaviour directly effects the positive or negative events which follow their efforts, while others feel that such events are not influenced by their behaviour but are controlled by powerful others or are determined by luck, chance, or fate. As a general rule, internal control refers to the belief that positive or negative events are a consequence of one's own behaviour and thereby under personal control; external control refers to the belief that positive or negative events are unrelated to one's own behaviours in certain situations and therefore beyond personal control [Rotter, Seeman, & Liverant, 1962].
Phares [1957] published the first of numerous scales developed to measure internal-external locus of control [James, 1957; Rotter, Seeman, & Liverant, 1962]. These were followed by studies investigating the predictability of behaviour on the basis of an internal or external locus of control orientation [Crandall, Katkovsky, & Preston, 1962; Kennelly & Kinley, 1975; Palmer, 1971].

Several studies have found that an external locus of control is associated with less adaptive coping mechanisms and mental pathology [Harrow & Ferrante, 1969; Palmer, 1971]; and is more prevalent among schizophrenics than non-schizophrenics [Cromwell, Rosenthal, Shakow, & Zahn, 1961]. Other researchers have reported that an internal locus of control is associated with achievement motivation among children [Crandall, Katkovsky, & Preston, 1962; Franklin, 1963; Rotter & Mulry, 1965]; is predictive of academic achievement [Coleman, Campbell, Hobson, McPartland, Weinfeld, & York, 1966; Kennelly & Kinley, 1975]; is associated with positive personal adjustment [Hersch & Scheibe, 1967; Phares, Ritchie, & Davis, 1968]; is predictive of success in therapy [Kilmann & Howell, 1974; Perry, 1970]; and is associated with a lower need to conform to group pressures [Crowne & Liverant, 1963].

In general the most widely held view is that a belief in an internal locus of control is a healthier and more positive personality characteristic than is a belief in an external locus of control.
While there exists an abundance of literature investigating the internal-external locus of control construct, further investigation of the relationship between locus of control and family environment would seem important. Crandall, Katkovsky, and Crandall (1965) in a study of 923 American elementary and secondary school students drawn from five suburban area schools, reported that beliefs in internal control are well established during childhood and increase little from the third to twelfth grades. It could be expected, therefore, that the child's family environment plays an important and influential role in the development of his/her locus of control orientation.

There is some research which has investigated locus of control and family relations. The findings have indicated that the features of the family environment which are associated with an internal locus of control are: maternal permissiveness, early independent training and maternal flexibility of expectations (Chance, 1965); parental behaviour characterized as warm, praising, protective, and supportive (Katkovsky, Crandall, & Good, 1967; MacDonald, 1971); and a family atmosphere described as consistent and supportive where parents have demonstrated affection, physical contact, trust, and security (Nowicki & Segal, 1974; Scheck, Emerick, & El-Assal, 1973). Internal locus of control has also been found to be associated with parental behaviour described as less controlling (Loeb, 1975); and with a family environment which is described as cohesive, expressive, independent, and encouraging cultural-
recreational activities [Nowicki & Schneewind, 1977].

External locus of control, on the other hand, has been found to be associated with family environments with features such as: dominance, rejection, and criticality [Katkovsky, Crandall, & Good, 1967]; overprotection, deprivation of privileges, and affective punishments [Johnson & Kilmann, 1975; MacDonald, 1971]; and control and conflict [Loeb, 1975; Nowicki & Schneewind, 1977].

The majority of the research which has investigated locus of control and family relations has been based on data derived from retrospective reports from adults and college-age students [Cromwell, 1963; Johnson & Kilmann, 1975; MacDonald, 1971] or observations of parental behaviour [Katkovsky, Crandall, & Good, 1967; Loeb, 1975]. However, for the purposes of this thesis the assumption, derived from symbolic interaction theory [Mead, 1938] was accepted. This theory purports that in order to understand the effects of childrearing patterns on children, it is necessary to examine the children's perception of the interaction between themselves and their family, since it is the children's own perception of the situation which is most significant for them.

Grade eight students were selected as subjects for this study. They were younger than subjects used in most past related research and since they still lived with their families, their perceptions of the family environment would be most immediate. This study also compared male and
female subjects, an area which most related research has
overlooked. Much of the previous related research has
studied male subjects to the exclusion of females [Kennelly
& Kinley, 1975; Loeb, 1975; Palmer, 1971; Scheck, Emerick,
& El-Assal, 1973].

Statement of the Problem

The purpose of this study was to investigate locus of
control orientation and children's perceptions of their
family environment. In order to study this relationship,
grade eight children's perceptions of their family
environment and the relationship to their internal-external
locus of control orientation was investigated. The study
attempted to determine whether children designated as
internally and externally controlled perceive their family
environments differently.

It was expected that internal locus of control sub-
jects would perceive their family environments as being
more cohesive; more expressive; as having more emphasis on
independence; more achievement oriented; more interested
in intellectual and cultural activities; more interested
in active-recreational activities; having a higher moral-
religious emphasis; and being more organized than external
locus of control subjects.

It was also expected that external locus of control
subjects would perceive their family environments as being
conflicting and more controlling than the internal locus
of control subjects' family environments.

It was expected there would be no difference between male and female subjects' perception of their family environments.

Description of the Following Chapters

This thesis was organized into five chapters plus references and appendix. The first chapter provided an introduction to the background of interest in the family's influence on children's personality development with particular focus on the personality construct locus of control. Chapter II provides an overview of selected literature which reports on locus of control and its relationship to personal-social functioning. This is followed by an overview of literature investigating parent and family influence on the development of locus of control. This leads into a description of the nature of this study. Hypotheses to be tested in this study are stated at this point. Chapter III describes the methodology. Chapter IV presents the results of the data analyses and tests of hypotheses. The fifth chapter provides the discussion, summary, and suggestions for further research. Forms and questionnaires appear in the appendix.
CHAPTER II

REVIEW OF SELECTED LITERATURE

A concise description of the internal-external locus of control dimension is presented, followed by a description of the various scales developed to measure locus of control. A review of the research investigating locus of control and its relationship to personal-social functioning is then presented, followed by a review of the various scales developed to measure family relations. Following this a review of the research investigating the influence of parents and family on the development of locus of control orientation is presented. This chapter concludes with a statement of the hypotheses to be tested in this study.

Internal-External Locus of Control

Internal-external locus of control is a dimension of personality generated within Rotter's social learning theory and refers to whether an individual perceives events in his/her life to be a result of his/her own efforts and behaviour -- this type of individual would be described as having an internal locus of control; or whether an individual perceives events in his/her life as being controlled by others or determined by luck, chance or fate and therefore accepting no personal responsibility for the events in his/her life -- this type of individual would be described as having an external locus of control.
Locus of Control Scales

The first attempt to measure the internal-external control dimension as a personality variable in social learning theory was reported in a doctoral dissertation by Phares (1955). Phares designed a thirteen-item scale to measure a general attitude or personality characteristic of attributing the occurrence of reinforcements to chance rather than oneself. James (1957) reported using a more lengthy revision of the Phares scale which later became known as the James-Phares scale.

Since the presentation of the James-Phares scale, a series of new scales has been used, some designed for testing special age groups. The Internal-External Control Scale is a forced-choice measure, designed for use with adults, offering alternatives between internal and external control interpretations of various events (Rotter, Seeman, & Liverant, 1962). The Locus of Control Scale for children is an orally administered true-false scale (Bialer, 1961); The Children's Picture Test of Internal-External Control is a projective measure which depicts situations which involve attribution of responsibility (Battle & Rotter, 1963); The Intellectual Achievement Responsibility Questionnaire is designed to measure children's locus of control in the academic situation (Crandall, Katkovsky, & Crandall, 1965); The Nowicki-Strickland Personal Reaction Survey is a generalized locus of control scale for children (Nowicki & Strickland, 1973).
The Nowicki-Strickland Personal Reaction Survey was chosen for use in this study because it was the most suitable locus of control scale, of the ones reviewed, which could be administered in a group setting. It was also the most suitable scale specifically designed to measure a generalized locus of control with children.

Research Investigating Locus of Control and its Relationship to Personal-Social Functioning

Harrow and Ferrante (1969) tested 128 psychiatric in-patients (45 males and 83 females) upon admission using the Internal-External Control Scale (Rotter, 1966). Following seven weeks of clinical treatment the subjects were re-tested. Their results suggested that patients with greater psychopathology and fewer social skills (schizophrenic) have a greater external orientation than patients with less chronic illnesses (non-schizophrenic).

Palmer (1971) compared a group of hospitalized psychiatric patients (n=89) with a control group of hospitalized medical (non-psychiatric) (n=88) male veterans on the Internal-External Scale (Rotter, 1966). The results clearly supported the author's hypothesis that psychiatric in-patients would demonstrate greater externality on Rotter's (1966) measure of internal-external control, as compared with patients hospitalized for non-psychiatric reasons. There was a significant relationship with the psychiatric patients obtaining significantly higher scores on the Internal-External Control Scale (signifying greater
externality] as compared with the non-psychiatric patients. These results are consistent with a study by Cromwell, Rosenthal, Shakow, and Zahn [1961] reporting greater externality in schizophrenic than in normal individuals on an early version of the Internal-External Control Scale, and with a study by Hersch and Scheibe [1967] which found greater maladjustment among externals. Harrow and Ferrante [1969] have reported greater externality for schizophrenics than for non-schizophrenic psychiatric patients.

Cromwell, Rosenthal, Shakow, and Zahn [1961] compared a group of white male schizophrenics \( n=15; \text{mean age}=34 \) with a control group of white male conscientious objectors \( n=13; \text{mean age}=22 \) using the Internal-External Control Scale. They described the schizophrenic subjects as having attitudes of external control while the normal subjects had attitudes of internal control. They also found schizophrenics described their mothers as more overly controlling than the normal subjects. The selection of conscientious objectors as subjects for the control group in this study would seem to invalidate the findings. It could be expected that a group of people who would identify themselves as conscientious objectors would naturally have attitudes of internal control.

Crowne and Liverant [1963] tested 110 introductory psychology students, 40 males and 70 females, and found those subjects identified as being externally controlled on the Internal-External Control Scale had a higher need for
approval, felt less confidence in their decisions, and con­formed more readily to group pressure than the internally controlled subjects.

Rotter and Mulry [1965] tested 61 female and 59 male subjects obtained from a first-year psychology class at a major university. The subjects were divided into external and internal groups using the Internal-External Control Scale. The average score was 8.48 and the median was 8.0. Therefore, all subjects with scores of 9 or more were classified as externals and with 8 or less, as internals. Analysis of variance indicated that males and females did not differ significantly on the Internal-External Control Scale. Consequently, subject gender did not appear to be a factor in accounting for the results. This study found that individuals characterized as internals take longer to decide in a matching task when the task is defined as skill controlled than when it is defined as chance controlled. The opposite tendency is found with subjects who are classified as externals. Externals tend to take longer to decide on the correct match when the task is defined as chance than when it is defined as skill controlled. The results are consistent with a study by Crowne and Liverant [1963] which found external subjects had less confidence in their decisions than internal subjects.

Crandall, Katkovsky and Preston [1962] administered the Children's Intellectual Achievement Responsibility Questionnaire to 40 elementary school-age children, 20 boys
and 20 girls equally distributed in the first, second and third grades. It was found that a belief in self-responsibility [internal control] for achievement events was predictive of achievement behaviours in boys, but not significantly related to those of the girls. It was also found that the more intellectually competent boys [as measured by the Stanford-Binet Intelligence Test] expressed stronger beliefs that their behaviours were instrumental in the reinforcement they experienced than did the less competent boys. In other words, the competent boys more often felt "master of their fate" [internal control] than did the boys who performed poorly in the intelligence testing situation. Furthermore, boys who felt that they, rather than others, were responsible for their everyday intellectual achievement reinforcements spent more time in free-play intellectual pursuits and exhibited more concerted striving in these activities than did boys who believed the outcome of their achievement efforts were more a function of others than themselves. Moreover, boys who evidenced strong intellectual striving in free play, as compared with the boys whose participation was casual and lackadaisical, had greater expectations of success for their intellectual efforts. Thus it appears as though a belief in an internal locus of control is predictive of achievement motivation in early grade-school males.

Crandall, Katkovsky, and Crandall [1965] administered the Intellectual Achievement Responsibility Questionnaire
[Crandall, Katkovsky, & Crandall, 1965] to 923 elementary and high school students from grades three to 12. Their results showed that a belief in internal control, to school-associated activities, was already established by the third grade and there was no significant change in internality from the third to fifth grade nor from sixth to twelfth grade for either of the sexes nor for the subject population as a whole.

Kennelly and Kinley [1975] tested 49 sixth grade boys using the Intellectual Achievement Responsibility Questionnaire [Crandall, Katkovsky, & Crandall, 1965] to determine the relationships among perceived teacher administered reinforcements, locus of control, and academic achievement. The results indicated that boys who perceived teachers as contingently punitive were internal in locus of control and performed well on measures of academic achievement. An internal locus of control was also predictive of academic achievement.

Hersch and Scheibe [1967] compared college-age students' scores on the Internal-External Control Scale with a number of other personality scales. They found the locus of control scales related consistently to measures of maladjustment, with internal scorers less maladjusted. Locus of control scales are consistently related to a variety of personality scales, with internal scorers describing themselves as more active, striving, achieving, powerful, independent, and effective. For two of three
samples, internal scorers were also significantly more effective as volunteer lay therapists on chronic mental hospital wards than external scorers. No significant differences were found between sexes.

In a study by Phares, Ritchie, and Davis [1968] the Internal-External Control Scale was administered to 255 students in summer school classes at a state university. Groups of internally and externally controlled subjects were administered personality tests and then subsequently provided individualized reports containing both positive and negative information about their personality. As predicted, externals recalled significantly more of the negative material than did internals. Internals showed a significantly greater willingness to engage in remedial behaviours to confront their problems. These findings were consistent with a study by Davis and Phares [1967] which found that internals are superior to externals in "actively" seeking information relevant to problem solution. Gore and Rotter [1963] suggested that internals are more likely to engage in behaviours that will confront a problem directly than are externals.

Kilmann and Howell [1974] compared the outcome of external and internal scores using the Internal-External Control Scale and considered the association between locus of control orientation and direct and non-direct marathon group therapy with 84 institutionalized female drug addicts. The significant results indicated that internals
evaluated themselves more favourably, evidenced greater efforts to be successful in therapy, and became more reflective - making more serious attempts to understand themselves. Within the therapy groups, internals consistently showed greater gains from pretherapy to post-therapy.

Perry [1970] investigated locus of control and its relationship to change in therapeutic outcome. The results indicated that when change occurs in treatment, it occurs more often in the direction from externalizing to internalizing than the reverse. This is consistent with other research which has found that individuals who have an internal locus of control are better adjusted both personally and socially than individuals who have an external locus of control.

Family Relations Tests and Scales

Interest in the family can be traced back to before the beginning of Freudian psychoanalysis. Since that time a number of instruments have been developed to measure various aspects of family relations.

The Family Relations Inventory [Brunkan & Crites, 1964] is a test developed to assess parental attitudes and their influence upon a client's vocational choice. The Family Rorschach [Loveland, Wynne, & Singer, 1963] was developed to measure a family's ability to reach a consensus on interpretation of the Rorschach inkblots. Pless and
Satterwhite [1973] developed an instrument, administered to parents, to assess the overall adequacy of family functioning from semi-structured interview data. Deykin [1972] developed a model for assessing life functioning in families of delinquent or pre-delinquent boys. The Family Relations Test [Anthony & Bene, 1957] was developed to test the direction and intensity of the child's feelings towards the various members of his family, and his/her estimate of their reciprocal regard for him/her. The Perceived Parenting Questionnaire [Devereux, Bronfenbrenner, & Rodgers, 1969] was designed to assess the child's perception of 14 general variables of parent behaviour. The Parent-Child Relations Questionnaire [Roe & Siegelman, 1963] was developed to assess children's perceptions of their mother or father's behaviour towards them. The Parent-Child Interaction Rating Scales [Heilbrun, 1964] are designed to assess perceived parental nurturance. The Family Environment Scale [Moos, 1974] was designed to assess the social climate of families. The last mentioned scale focuses on the measurement of interpersonal relationships among family members, on the directions of personal growth emphasized within the family, and on the basic organization structure of the family.

The Family Environment Scale was chosen for use in this study because it was the most suitable family relations scale, of the ones reviewed, which could be administered to children. It was also the most suitable scale
specifically designed to measure individuals' perceptions of their family environment.

Research Investigating Locus of Control as a Function of the Family Environment

Despite the number of studies reported in the literature concerning locus of control, relatively little has been done to investigate the origins of internal and external control orientations. Chance [1965] and Katkovsky, Crandall, and Good [1967] have investigated the relationship between locus of control, as measured by the Intellectual Achievement Responsibility Questionnaire [Crandall, Katkovsky, & Crandall, 1965], and data obtained through questioning and observing parents. Both studies produced similar findings. Chance [1965] reported that maternal permissiveness, early independent training, and mothers' flexibility of expectations for their children were related to internal control orientations of sons, but these maternal variations were not significantly related to the orientations of daughters. Correspondingly, Katkovsky, Crandall, and Good [1967] reported that though girls whose fathers were especially affectionate and nurturant were less inclined to believe that they had caused their own failures, their findings generally indicated that parent behaviours characterized as warm, praising, protective, and supportive were positively associated with children's belief in internal control. Conversely, such parental behaviours as dominance, rejection and criticality were
negatively associated with beliefs in internal control.

In a study by MacDonald [1971] retrospective reports of parental behaviour and results of the Internal-External Control Scale were collected from 427 (192 male and 235 female) undergraduate university students. The data were analyzed in a 2x2 analysis of variance design (Sex and Parent Behaviour). The results indicated that internally controlled subjects described their parents as being warm (nurturant), consistent (predictable), and as encouraging their children to try to control their own reinforcements. On the other hand, externally controlled subjects described their parents as using techniques which are rather likely to give an impression that one's reinforcements are externally controlled; namely, overprotection, deprivation of privileges, and affective punishment.

In a similar study Johnson and Kilmann [1975] looked at the relationship between recalled parental attitudes and internal-external locus of control. The subjects were 80 university undergraduates (40 male and 40 female). They were administered the Rotter [1966] Locus of Control Scale and the Family Relations Inventory (Brunkan & Crites, 1964). The results indicated that maternal childrearing attitudes of overprotectiveness and restrictiveness were related to an external control orientation.

Scheck, Emerick, and El-Assal [1973] hypothesized that certain dimensions of parental behaviour were influential in the development of an internal or external
control orientation. These dimensions were parental consistency, constraint, and support. They collected data from 552 male ninth-graders on parent-child variables and internal-external control orientation. They found the most influential factor in the development of internal-external control orientation in young male adolescents is degree of perceived parental support.

Nowicki and Segal [1974] in an attempt to ascertain perceived parental behaviour associated with locus of control orientation, had 112 grade twelve students (58 male and 54 female) complete a locus of control and perceived parental behaviour scale. Locus of control of the subjects was measured by the Nowicki-Strickland Personal Reaction Survey [Nowicki & Strickland, 1973] and perceived parental nurturance was assessed by a modification of the Parent-Child Interaction Rating Scales [Heilbrun, 1964]. The results showed that for females, internality was associated with greater perceived paternal affection, physical contact, trust and security and greater perceived maternal physical contact, trust and security. For males, internality was associated with greater perceived maternal affection. The results of this study are consistent with the findings of MacDonald [1971]; that is, perceived nurturance of parents is associated with internality.

Loeb [1975] observed the interaction between fourth and fifth grade boys, who were highly internal and highly external in locus of control, and their parents, to assess
the parental influence on their locus of control. The results showed that external boys more frequently had highly directive [more controlling] parents, while internal boys had less directive [less controlling] parents.

In a study by Nowicki and Schneewind (1977) the relationship between family environment and locus of control orientation was investigated by having over 700 twelve and eighteen-year-old German and American males and females complete the Family Environment Scale (Moos, 1974) and the Nowicki-Strickland Personal Reaction Survey (Nowicki & Strickland, 1973). Individuals with high internal control felt that their families were cohesive, expressive, independent, and high on participation in cultural and recreational activities, and showed little evidence of conflict or controlling relationships. The family environment associated with internality was generally consistent across sex, age and culture, except for the fact that older German males showed no significant correlations between family variables and locus of control. However, results were in the expected direction and this group was more independent of the family influence, since it included students and working people.

The Nature of this Study

The purpose of this study was to investigate the relationship between locus of control and children's perceptions of their family environment. A group of grade eight children was selected because they were younger than
those subjects used in most previous related research. These children's perceptions of their family environment would be more immediate because they were still living in the family setting. Unlike most previous research this study was also interested in researching possible male/female differences on the locus of control and family influence dimension. The possible interaction of locus of control and sex was also considered. For this study internal-external locus of control was measured by the Nowicki-Strickland Personal Reaction Survey [Nowicki & Strickland, 1973]. The family environment was measured by use of the Family Environment Scale [Moos, 1974].

It was expected that there would be a significant difference between internal and external locus of control subjects' perceptions of their family environments. No difference was expected between male and female subjects' perceptions of their family environments, and no significant interaction between locus of control and subject gender was expected.

Specifically, this study investigated the following hypotheses, stated in the null form:

H1: There will be no significant difference [\(\alpha = .05\)] between the mean score of 'internal locus of control' subjects and 'external locus of control' subjects on each of the following sub-scales of the Family Environment Scale:

1. Cohesion
2. Expressiveness
3. Conflict
4. Independence
5. Achievement orientation
6. Intellectual-cultural orientation
7. Active-recreational orientation
8. Moral-religious emphasis
9. Organization
10. Control

H2: There will be no significant difference [\( \alpha = .05 \)] between the mean score of male and female subjects on each of the following subscales of the Family Environment Scale:

1. Cohesion
2. Expressiveness
3. Conflict
4. Independence
5. Achievement orientation
6. Intellectual-cultural orientation
7. Active-recreational orientation
8. Moral-religious emphasis
9. Organization
10. Control

H3: There will be no significant interaction [\( \alpha = .05 \)] between locus of control and subject gender on each of the following subscales of the Family Environment Scale:

1. Cohesion
2. Expressiveness
3. Conflict
4. Independence
5. Achievement orientation
6. Intellectual-cultural orientation
7. Active-recreational orientation
8. Moral-religious emphasis
9. Organization
10. Control
CHAPTER III

METHODOLOGY

The sample, description of instruments, data collection procedures and data analyses used are presented in this chapter.

Sample

The sample for the present study consisted of all grade eight students enrolled in the New Westminster Secondary School. New Westminster, B.C. is a suburban municipality located within the Greater Vancouver Regional District. The demographic makeup of New Westminster could be expected to contain the full range of socio-economic levels and be representative of the demographic makeup of other municipalities in the surrounding region. The New Westminster Secondary School is the sole public secondary school located within the Municipality of New Westminster and as a result is the only public school available to children living within the New Westminster School District. Since the sample of the present study consisted of all grade eight students enrolled in the New Westminster Secondary School it was expected that socio-economic and demographic variables would be evenly distributed throughout the sample and that this sample would be representative of the socio-economic and demographic makeup of New Westminster and other municipalities in the Greater Vancouver Regional District.
Permission to include the grade eight students in this study was granted by the New Westminster School Board and the principal of the New Westminster Secondary School.

Description of Instruments

The measuring instruments which were used in this study were the Nowicki-Strickland Personal Reaction Survey [Nowicki & Strickland, 1973] and the Family Environment Scale [Moos, 1974].

1. Nowicki-Strickland Personal Reaction Survey

   The Nowicki-Strickland Personal Reaction Survey [Nowicki & Strickland, 1973] is a locus of control scale for children, used in this study to measure the independent variable, locus of control and to assign subjects to the internal and external comparison groups. The Nowicki-Strickland Survey is a pencil-and-paper questionnaire consisting of 40 questions which must be answered either 'yes' or 'no'. The questionnaire yields a generalized expectancy of reinforcement, with high scores being associated with an external locus of control. Reliability estimates are satisfactory based on samples from grades three to twelve. Test-retest reliabilities were .63 to .82; internal consistency reliabilities were .63 to .79 with n=1,732. Scores on the questionnaire are significantly related to other measures of locus of control [Nowicki & Strickland, 1973], supporting the instrument's construct validity.
2. **Family Environment Scale**

The Family Environment Scale - Form R (Moos, 1974) was used to measure the dependent variable, perceived family environment. The Family Environment Scale is a pencil-and-paper questionnaire consisting of 90 questions which must be answered either 'true' or 'false'. The questionnaire yields independent scores for ten separate subscales: Cohesion, Expressiveness, Conflict, Independence, Achievement Orientation, Intellectual-Cultural Orientation, Active-Recreational Orientation, Moral-Religious Emphasis, Organization, and Control. Table 3.1 provides a description of the Family Environment Scale subscales. The internal consistencies for the Family Environment Scale are satisfactory, ranging from .64 to .79. The item-to-subscale correlations vary from .45 for Independence to .58 for Cohesion. The test-retest reliabilities are all satisfactory, ranging from .58 for Independence to .86 for Cohesion (Moos, 1974).

**Data Collection Procedures**

The Nowicki-Strickland Personal Reaction Survey and the Family Environment Scale were administered to the students, by the investigator, in a group setting of the students' regular home-room classroom.

In order to control for test-taking order effects, the order of the questionnaires administered was counterbalanced across classes.
<table>
<thead>
<tr>
<th>Relationship Dimensions</th>
<th>Personal Growth Dimensions</th>
<th>System Maintenance Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cohesion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The extent to which family members are concerned and committed to the family and the degree to which family members are helpful and supportive of each other.</td>
<td>4. Independence</td>
<td>The extent to which family members are encouraged to be assertive, self-sufficient, to make their own decisions and to think things out for themselves.</td>
</tr>
<tr>
<td>2. Expressiveness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The extent to which family members are allowed and encouraged to act openly and to express their feelings directly.</td>
<td>5. Achievement Orientation</td>
<td>The extent to which different types of activities [i.e., school and work] are cast into an achievement oriented or competitive framework.</td>
</tr>
<tr>
<td>3. Conflict</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The extent to which the open expression of anger and aggression and generally conflictual interactions are characteristic of the family.</td>
<td>6. Intellectual-Cultural Orientation</td>
<td>The extent to which the family is concerned about political, social, intellectual and cultural activities.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Active-Recreational Orientation</td>
<td>The extent to which the family participates actively in various kinds of recreational and sporting activities.</td>
<td></td>
</tr>
<tr>
<td>8. Moral-Religious Emphasis</td>
<td>The extent to which the family actively discusses and emphasizes ethical and religious issues and values.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Organization</td>
<td>Measures how important order and organization is in the family in terms of structuring the family activities, financial planning, and explicitness and clarity in regard to family rules and responsibilities.</td>
<td></td>
</tr>
<tr>
<td>10. Control</td>
<td>Assesses the extent to which the family is organized in a hierarchical manner, the rigidity of family rules and procedures and the extent to which family members order each other around.</td>
<td></td>
</tr>
</tbody>
</table>
The students were informed of the investigator's interest in gathering information concerning attitudes and opinions of grade eight students. The students were assured of confidentiality and anonymity and were then asked to complete the Student Information Form which was provided [see Appendix A].

In administering the Nowicki-Strickland Personal Reaction Survey the investigator read each [see Appendix B] item aloud once, asking the students to check 'yes' or 'no' on the questionnaire.

In administering the Family Environment Scale the investigator read the instructions [see Appendix C] aloud while the students followed with their test booklet and answer sheet [see Appendix D]. The investigator then read each item on the Family Environment Scale aloud once, asking the students to check 'true' or 'false' on their answer sheet.

Data Analyses

The range, mean, and standard deviation of the subjects' scores on the Nowicki-Strickland Personal Reaction Survey are presented in Chapter IV.

The results of the Nowicki-Strickland Personal Reaction Survey and the Family Environment Scale were tabulated, and two comparison groups of subjects were selected on the basis of their score on the Nowicki-Strickland Personal Reaction Survey. Subjects who scored one standard deviation above the mean were classified as 'externals' and
subjects who scored one standard deviation below the mean were classified as 'internals'. This method of classification was chosen because it appeared to be the most effective method to designate subjects to the two comparison groups. In a similar study Johnson and Kilmann [1975] employed the same method of classification for 'internal' and 'external' locus of control comparison groups.

The means and standard deviations of the male and female 'internal' and 'external' comparison groups scores for the subscales of the Family Environment Scale are presented in Chapter IV.

Analysis of variance was used to determine differences between the mean scores of:

1. internal and external subjects
2. male and female subjects, as well as to explore possible interaction effects between the two factors, locus of control and subject gender.

A 2x2 analysis of variance was conducted for each of the ten subscales contained in the Family Environment Scale. These analyses were conducted using the BMD P2V - Analysis of Variance and Covariances with Repeated Measures [1979] computer program.

The first section of Chapter IV reports the results of the data analyses, and the second part contains the tests of hypotheses. All significance tests in this study were performed at $\alpha = .05$. This standard level of statistical significance was chosen because it appeared to be the most satisfactory and most commonly used level of statistical significance.
CHAPTER IV

DATA PRESENTATION AND STATISTICAL ANALYSES

This chapter reports the results of the data analyses. The descriptive statistics are presented first, followed by a presentation of the inferential statistical tests of hypotheses.

Descriptive Statistics

The sample consisted of 207 grade eight students (86 males and 121 females). The age range was 12 to 15 years and the mean age of the subjects was 13 years.

The subjects' scores on the Nowicki-Strickland Personal Reaction Survey were tabulated. The range, mean, and standard deviation of the subjects' scores on the Nowicki-Strickland Personal Reaction Survey are presented in Table 4.1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>207</td>
<td>4.00</td>
<td>30.00</td>
<td>14.77</td>
<td>4.96</td>
</tr>
</tbody>
</table>

A review of Table 4.1 indicates there were 207 subjects who completed the Nowicki-Strickland Personal Reaction Survey. The range of scores on the Nowicki-Strickland Personal Reaction Survey were from a low of 4.0 to a high
of 30.0 with an average score of 14.77. The standard deviation on the questionnaire was 4.96.

Two comparison groups of subjects were selected on the basis of the scores on the Nowicki-Strickland Personal Reaction Survey. Subjects who scored one standard deviation above the mean ($>20.0$) were classified as 'external' locus of control and subjects who scored one standard deviation below the mean ($<10.0$) were classified as 'internal' locus of control. Table 4.2 presents the group structure of the two comparison groups.

<table>
<thead>
<tr>
<th>Sex</th>
<th>Locus of Control</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Internal</td>
<td>20</td>
</tr>
<tr>
<td>Female</td>
<td>Internal</td>
<td>26</td>
</tr>
<tr>
<td>Male</td>
<td>External</td>
<td>16</td>
</tr>
<tr>
<td>Female</td>
<td>External</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>80</td>
</tr>
</tbody>
</table>

A review of Table 4.2 indicates there were 20 male and 26 female subjects who scored one standard deviation below the mean ($<10.0$) on the Nowicki-Strickland Personal Reaction Survey. These 46 subjects were classified as 'internal' locus of control. A further review of Table 4.2 indicates there were 16 male and 18 female subjects who scored one standard deviation above the mean ($>20.0$). These 34 subjects were classified as 'external' locus of control. The total number of subjects when both the 'internal' and
The raw scores on the Family Environment Scale were tabulated for the subjects designated to the 'internal' and 'external' comparison groups. The raw scores on the Family Environment Scale were then converted to standard scores. The means and standard deviations for the dependent variables are presented in Table 4.3.

Tests of Hypotheses

The hypotheses were tested using analysis of variance. The results of the analysis of variance for these hypotheses appear in Table 4.4.

The remainder of this chapter consists of a statement of each statistical hypothesis along with a summary of the result of each inferential test.

H1: There will be no significant difference \( \alpha = .05 \) between the mean score of 'internal' locus of control subjects and 'external' locus of control subjects on each of the Family Environment Scale subscales.

1. Cohesion

The results of the analysis of variance indicated that the null hypothesis should be rejected (see Table 4.4). A significant difference \( \alpha = .05 \) between the 'internal' group mean (55.71) and the 'external' group mean (38.57) (see Table 4.3) was found for the dependent variable, Cohesion \( p < .0001 \). Therefore the null hypothesis was rejected,
<table>
<thead>
<tr>
<th>Family Environment Scale Subscale</th>
<th>Sex</th>
<th>Internal Mean</th>
<th>S.D.</th>
<th>External Mean</th>
<th>S.D.</th>
<th>Total Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cohesion</td>
<td>M</td>
<td>56.00</td>
<td>10.45</td>
<td>41.31</td>
<td>8.69</td>
<td>48.65</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>55.42</td>
<td>8.28</td>
<td>35.83</td>
<td>13.61</td>
<td>45.63</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>55.71</td>
<td></td>
<td>38.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Expressiveness</td>
<td>M</td>
<td>38.57</td>
<td>12.38</td>
<td>35.69</td>
<td>8.69</td>
<td>37.22</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>46.12</td>
<td>10.58</td>
<td>34.39</td>
<td>10.16</td>
<td>40.26</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>42.44</td>
<td></td>
<td>35.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Conflict</td>
<td>M</td>
<td>41.90</td>
<td>10.79</td>
<td>49.31</td>
<td>11.42</td>
<td>45.61</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>39.65</td>
<td>10.67</td>
<td>54.61</td>
<td>13.67</td>
<td>47.13</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>40.78</td>
<td></td>
<td>51.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Independence</td>
<td>M</td>
<td>42.20</td>
<td>9.83</td>
<td>34.25</td>
<td>10.59</td>
<td>38.23</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>44.69</td>
<td>11.46</td>
<td>40.06</td>
<td>13.38</td>
<td>42.38</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>43.45</td>
<td></td>
<td>37.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Achievement Orientation</td>
<td>M</td>
<td>55.30</td>
<td>7.90</td>
<td>43.75</td>
<td>7.86</td>
<td>49.53</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>54.77</td>
<td>8.18</td>
<td>47.67</td>
<td>8.44</td>
<td>51.22</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>55.04</td>
<td></td>
<td>45.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Intellectual-Cultural Orientation</td>
<td>M</td>
<td>50.00</td>
<td>8.97</td>
<td>36.50</td>
<td>8.37</td>
<td>43.25</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>42.27</td>
<td>11.48</td>
<td>38.72</td>
<td>9.62</td>
<td>40.50</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>46.14</td>
<td></td>
<td>37.61</td>
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<td></td>
</tr>
<tr>
<td>7. Active-Recreational Orientation</td>
<td>M</td>
<td>50.20</td>
<td>12.56</td>
<td>43.36</td>
<td>11.27</td>
<td>46.78</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>51.62</td>
<td>11.40</td>
<td>47.00</td>
<td>12.52</td>
<td>49.31</td>
</tr>
<tr>
<td></td>
<td>Total</td>
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<td></td>
<td>45.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Moral-Religious Emphasis</td>
<td>M</td>
<td>50.55</td>
<td>7.97</td>
<td>46.81</td>
<td>9.70</td>
<td>48.68</td>
</tr>
<tr>
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<td>10.68</td>
<td>40.61</td>
<td>7.29</td>
<td>43.83</td>
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<tr>
<td></td>
<td>Total</td>
<td>48.80</td>
<td></td>
<td>43.71</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Organization</td>
<td>M</td>
<td>52.50</td>
<td>11.16</td>
<td>46.19</td>
<td>8.75</td>
<td>49.35</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>52.62</td>
<td>10.35</td>
<td>48.61</td>
<td>9.28</td>
<td>50.62</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>52.56</td>
<td></td>
<td>47.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Control</td>
<td>M</td>
<td>51.50</td>
<td>10.75</td>
<td>53.50</td>
<td>12.36</td>
<td>52.50</td>
</tr>
<tr>
<td></td>
<td>F</td>
<td>46.35</td>
<td>10.33</td>
<td>55.44</td>
<td>10.74</td>
<td>50.90</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>48.93</td>
<td></td>
<td>54.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dependent Variable</td>
<td>Source</td>
<td>S.S.</td>
<td>df</td>
<td>M.S.</td>
<td>F</td>
<td>P</td>
</tr>
<tr>
<td>--------------------</td>
<td>--------</td>
<td>--------</td>
<td>-----</td>
<td>--------</td>
<td>---------</td>
<td>--------</td>
</tr>
<tr>
<td>1. Cohesion</td>
<td>Locus</td>
<td>5669.26</td>
<td>1</td>
<td>5669.26</td>
<td>53.62</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td></td>
<td>Sex</td>
<td>177.59</td>
<td>1</td>
<td>177.59</td>
<td>1.67</td>
<td>0.1997</td>
</tr>
<tr>
<td></td>
<td>LS</td>
<td>116.37</td>
<td>1</td>
<td>116.37</td>
<td>1.10</td>
<td>0.2983</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>8064.28</td>
<td>76</td>
<td>106.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>14047.50</td>
<td>79</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Expressiveness</td>
<td>Locus</td>
<td>1059.06</td>
<td>1</td>
<td>1059.06</td>
<td>9.36</td>
<td>0.0031</td>
</tr>
<tr>
<td></td>
<td>Sex</td>
<td>176.22</td>
<td>1</td>
<td>176.22</td>
<td>1.57</td>
<td>0.2133</td>
</tr>
<tr>
<td></td>
<td>LS</td>
<td>363.48</td>
<td>1</td>
<td>363.48</td>
<td>3.21</td>
<td>0.0771</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>8600.12</td>
<td>76</td>
<td>113.16</td>
<td></td>
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</tr>
<tr>
<td></td>
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indicating that children with an internal locus of control perceive a significantly greater level of cohesion within their family environments than do children with an external locus of control.

2. Expressiveness

The results of the analysis of variance indicated that the null hypothesis should be rejected (see Table 4.4). A significant difference ($\alpha \leq .05$) between the 'internal' group mean (42.44) and the 'external' group mean (35.04) (see Table 4.3) was found for the dependent variable, Expressiveness ($p = .0031$). Therefore the null hypothesis was rejected, indicating that children with an internal locus of control perceive a significantly greater level of expressiveness within their family environments than do children with an external locus of control.

3. Conflict

The results of the analysis of variance indicated that the null hypothesis should be rejected (see Table 4.4). A significant difference ($\alpha \leq .05$) between the 'internal' group mean (40.78) and the 'external' group mean (51.96) (see Table 4.3) was found for the dependent variable, Conflict ($p = .0001$). Therefore the null hypothesis was rejected, indicating that children with an external locus of control perceive a significantly greater level of conflict.
within their family environments than do children
with an internal locus of control.

4. Independence

The results of the analysis of variance indicated that the null hypothesis should be rejected
[see Table 4.4]. A significant difference ($\chi^2 = .05$) between the 'internal' group mean [43.45] and the
'external' group mean [37.16] [see Table 4.3] was found for the dependent variable, Independence
($p = .0173$). Therefore the null hypothesis was
rejected, indicating that children with an internal
locus of control perceive a significantly greater
level of independence within their family environ­
ments than do children with an external locus of
control.

5. Achievement Orientation

The results of the analysis of variance indicated that the null hypothesis should be
rejected [see Table 4.4]. A significant difference
($\chi^2 = .05$) between the 'internal' group mean [55.04]
and the 'external' group mean [45.71] [see Table 4.3]
was found for the dependent variable, Achievement
Orientation ($p = .0001$). Therefore the null hypothesis
was rejected, indicating that children with an inter­
nal locus of control perceive a significantly greater
level of achievement orientation within their family
environments than do children with an external locus
of control.

6. Intellectual-Cultural Orientation

The results of the analysis of variance indicated that the null hypothesis should be rejected (see Table 4.4). A significant difference [p < .05] between the 'internal' group mean [46.14] and the 'external' group mean [37.61] (see Table 4.3) was found for the dependent variable, Intellectual-Cultural Orientation (p < .0003). Therefore the null hypothesis was rejected, indicating that children with an internal locus of control perceive a significantly greater level of intellectual-cultural orientation within their family environments than do children with an external locus of control.

7. Active-Recreational Orientation

The results of the analysis of variance indicated that the null hypothesis should be rejected (see Table 4.4). A significant difference [p < .05] between the 'internal' group mean [50.91] and the 'external' group mean [45.18] (see Table 4.3) was found for the dependent variable, Active-Recreational Orientation (p < .0381). Therefore the null hypothesis was rejected, indicating that children with an internal locus of control perceive a significantly greater level of active-recreational orientation within their family environments than do children with an external locus of control.
8. Moral-Religious Emphasis

The results of the analysis of variance indicated that the null hypothesis should be rejected (see Table 4.4). A significant difference ($\alpha = .05$) between the 'internal' group mean (48.80) and the 'external' group mean (43.71) (see Table 4.3) was found for the dependent variable, Moral-Religious Emphasis ($p = .0169$). Therefore the null hypothesis was rejected, indicating that children with an internal locus of control perceive a significantly greater level of moral-religious emphasis within their family environments than do children with an external locus of control.

9. Organization

The results of the analysis of variance indicated that the null hypothesis should be rejected (see Table 4.4). A significant difference ($\alpha = .05$) between the 'internal' group mean (52.56) and the 'external' group mean (47.40) (see Table 4.3) was found for the dependent variable, Organization ($p = .0265$). Therefore the null hypothesis was rejected, indicating that children with an internal locus of control perceive a significantly greater level of organization within their family environments than do children with an external locus of control.
10. Control

The results of the analysis of variance indicated that the null hypothesis should be rejected [see Table 4.4]. A significant difference [$\alpha = .05$] between the 'internal' group mean (48.93) and the 'external' group mean (54.77) [see Table 4.3] was found for the dependent variable, Control ($p = .0287$). Therefore the null hypothesis was rejected, indicating that children with an external locus of control perceive a significantly greater level of control within their family environments than do children with an internal locus of control.

H2: There will be no significant difference [$\alpha = .05$] between the mean score of male and female subjects on each of the Family Environment Scale subscales.

The results of the analysis of variance indicated that it was not possible to reject the null hypothesis for all but one of the Family Environment Scale subscales [see Table 4.4]. The null hypothesis was accepted for nine of the subscales of the Family Environment Scale and it was concluded that there was no significant difference between male and female mean scores on the dependent variables, Cohesion, Expressiveness, Conflict, Independence, Achievement Orientation, Intellectual-Cultural Orientation, Active-Recreational Orientation, Organization, and Control. Therefore, it may be concluded that there is no difference between how males and females
perceive their family environments on each of the above mentioned subscales.

Moral-Religious Emphasis

The results of the analysis of variance indicated that the null hypothesis should be rejected [see Table 4.4]. A significant difference [\(\alpha = .05\)] between the male mean [48.68] and the female mean [43.83] [see Table 4.3] was found for the dependent variable, Moral-Religious Emphasis [\(p = .0222\)]. Therefore the null hypothesis was rejected, indicating that boys perceive a significantly greater level of moral-religious emphasis within their family environments than do girls.

H3: There will be no significant interaction [\(\alpha = .05\)] between locus of control and subject gender on each of the Family Environment Scale subscales.

The results of the analysis of variance indicated that it was not possible to reject the null hypothesis for all but one of the Family Environment Scale subscales [see Table 4.4]. The null hypothesis was accepted for nine of the subscales of the Family Environment Scale and it was concluded that there was no significant interaction between locus of control and subject gender on the dependent variables, Cohesion, Expressiveness, Conflict, Independence, Achievement Orientation, Active-Recreational Orientation, Moral-Religious Emphasis, Organization, and Control.
The results of the analysis of variance indicated that the null hypothesis should be rejected [see Table 4.4]. A significant interaction ($\alpha=.05$) between 'internal' and 'external' male means [50.00, 36.50] and 'internal' and 'external' female means [42.27, 38.72] [see Table 4.3] was found for the dependent variable, Intellectual-Cultural Orientation [$p=.0300$]. Therefore the null hypothesis was rejected, indicating that there is a significant interaction between 'internal' and 'external' male children and 'internal' and 'external' female children and how they perceive the level of intellectual-cultural orientation within their family environments. Figure 4.1 presents the locus of control and subject gender interaction.
FIGURE 4.1

Locus of Control and Subject Gender Interaction

The discussion, summary, and suggestions for further research are presented in Chapter V.
Discussion

The results of the data analyses showed that children with an internal locus of control saw their family environments much differently on all 10 subscales of the Family Environment Scale than did the children with an external locus of control. The internal locus of control children saw their families as being more cohesive, more expressive, encouraging more independence, having a higher level of achievement orientation, a greater interest in intellectual-cultural activities, a greater interest in active-recreational activities, more interested in moral-religious issues and values, and being more organized than did the external locus of control children.

It may be expected therefore that children with an internal locus of control are more likely to come from families which model and maintain the characteristics and values listed above. It appears that children who have developed a healthy belief in themselves and their abilities have had exposure to the above mentioned characteristics and values in their own families. Since the family is the most influential learning context for children, it would seem that the family environment would play a significant role in developing an internal or external locus of
control in children.

In addition to the above findings the data analyses showed that children with an external locus of control saw a significantly higher level of conflict and control in their families than did children with an internal locus of control. It may be expected therefore that children with an external locus of control are more likely to have experienced a family environment which they perceive to be conflicting and controlling. It would seem logical that if a child is raised in an environment where conflicting interactions and a rigid family hierarchy are characteristic of the home then that child would be less likely to develop a belief in oneself and one's abilities, and would be more likely to develop an external locus of control believing that positive and negative events are outside personal control and are controlled by powerful others.

As a general rule, this study seems to point out that children who have developed an internal locus of control are more likely to perceive their family environment to be cohesive, expressive, independent, achievement oriented, intellectual-cultural oriented, active-recreational oriented, interested in moral-religious issues, and well organized. Furthermore, children who have developed an external locus of control are more likely to perceive their family environment as being characterized by conflict and control. These results are consistent with the findings of previous research which has investigated the relationship between locus of control and perceived parental behaviour and family environment (Loeb, 1975; Nowicki & Segal,
The results of the data analyses showed no difference between male and female children on all but one of the Family Environment Scale subscales. The exception was the subscale of Moral-Religious Emphasis. The results showed that male children saw their family environments as having a higher degree of moral-religious emphasis than did the female children. One could speculate that boys more often feel a greater moral-religious pressure from their families than do girls. In order to determine a greater understanding of the possible reasons for the male-female difference, further study into the actual family environments would be necessary. It may be that even if their family environments were similar on moral-religious emphasis, boys might still perceive a higher degree of moral-religious emphasis than girls.

For the most part, the results showed there is no difference between how male and female children perceive their family environments. This result demonstrates that male and female children who have developed an internal locus of control, and therefore developed a belief in themselves, perceive the characteristics in his/her family environment to be similar. Furthermore, male and female children who have developed an external locus of control, and therefore developed a tendency not to believe in his or her own abilities, also perceive the characteristics in his/her family environment to be similar.

The results of the data analyses showed no interaction
between locus of control and subject gender on all but one of the Family Environment Scale subscales. The exception was the subscale of Intellectual-Cultural Orientation. The results showed that internal males perceived a higher level of intellectual-cultural orientation in their families than did external males. Internal and external females, on the other hand, perceived a similar level of intellectual-cultural orientation in their families. The large difference between internal and external males' perceptions produced an interaction between the independent variables locus of control and subject gender.

One could speculate that the interaction produced by the large difference between internal and external males' perceptions of the intellectual-cultural orientation within their families is a result of one of two things. Either external males perceive less family concern or interest in political, social, and cultural activities because they as individuals feel these kinds of issues are beyond their personal control, or the external males' perceptions are accurate and their families do not place much emphasis or importance on intellectual-cultural activities. In order to determine a more accurate understanding of the internal-external male difference, further study into the actual family environments would be necessary.

Summary

The focus of this study was to investigate internal-external locus of control and its relationship to children's perceptions of their family environment.
A survey of the literature indicated that most studies done in this area have been retrospective studies of college-age students or observation of parental behaviour. Most researchers also failed to investigate possible male-female differences, most often confining their investigations to males. This study investigated male and female grade eight children's locus of control orientation and their perceptions of their family environments.

The data were analyzed using analysis of variance to investigate possible differences between subjects' perceptions of their family environments. A 2x2 matrix was used to determine the results between internal-external locus of control, subject gender, and the possible interaction of these two variables.

The discussion of the data analyses pointed to the significant role locus of control orientation has in effecting children's perceptions of their family environment.

Implications of the Study

The implications of this study would appear to be far reaching in scope. This study seems to clearly determine that children's locus of control orientation is strongly associated with certain characteristics of the family environment, and that this association is consistent for both males and females. It has previously been determined that individuals with an internal locus of control perform better and function more successfully in numerous personal and social arenas than do individuals with an external locus of control. Thus it would seem desirable for children
to develop an internal locus of control and it appears as though the family environment plays an extremely important role in this link.

The above finding has implications for counsellors and therapists who are treating children and families. It may be beneficial to measure locus of control orientation and perceived family environment during the course of assessment, treatment, and follow-up. These measures could help the therapist establish goals for change with their clients, with the intention of helping the family become more cohesive and expressive. It would be interesting to determine that if the family environment changes, does this have a desirable effect on the locus of control orientation of the individual family members?

It appears that children with an internal locus of control see themselves as more self-sufficient than children with an external locus of control. This finding is correlated with the children's perceptions of the relationships and social climate within their families. Thus it would seem desirable, when working with families, to try and help them work towards creating a family environment which models those characteristics associated with the development of an internal locus of control in children. Since a child's locus of control orientation is established at a young age, early intervention into the family structure would seem desirable.

Limitations of the Study

A major limitation of this study is the lack of
control over possible effects of socio-economic and demographic variables. While it was expected that these variables would be evenly distributed throughout the sample it is not possible to determine what effect they may have had on the subjects' perceptions of their family environments. There are a number of demographic variables which could have affected this study including: socio-economic status, two-parent or single-parent families, family size, and birth order.

While this study found a strong correlation between locus of control and perceived family environment and the findings can probably be generalized to grade eight students in the Greater Vancouver Regional District, this study does not determine a cause-and-effect relationship between family environment and locus of control.

Another limitation of this study may be that the Nowicki-Strickland Personal Reaction Survey and the Family Environment Scale are both measuring similar personality factors and that the Family Environment Scale may not be measuring the actual family climate. If it were the case that these scales are measuring similar personality characteristics then they would obviously select subjects for comparison based on similar dimensions of personality and thus the findings of this study would be expected.

A further limitation could be that the Family Environment Scale is not measuring the actual family climate, but only the child's perception of his/her family climate. The counter-argument to this is that the Family Environment Scale is accurately measuring the perceived family environ-
ment and that it is the child's perception of his/her environment which is most important to him/her. The child's perceptions of his/her family climate is what he/she sees as reality and it is these perceptions which he/she responds to emotionally and behaviourally.

The above discussion points out the difficulty involved in developing a standardized measure to accurately explore and measure the complex realm of family relations and family dynamics.

Suggestions for Further Research

1. Investigate more fully the demographic data obtained from the students on the Student Information Form [see Appendix A]. It would be interesting to determine what effect living in a two-parent family has on children's locus of control orientation and perceived family environment and compare this with children's experiences in single-parent families. It would also be interesting to investigate the effects of living with either a single female parent or a single male parent and determine the effects of these living arrangements on children's locus of control orientation and perceptions of family environment. Further investigation into family size and birth order effects on locus of control orientation and perceived family environment would also be interesting.

2. Investigate the perceived family environment of parents and siblings by randomly selecting families to whom the Family Environment Scale could be administered.
This would enable the determination of possible differences or similarities between parent, child, and sibling perceptions of the family climate.

3. Replicate the data analyses but rather than dividing the subjects into comparison groups on the basis of their scores on the Nowicki-Strickland Personal Reaction Survey, divide the subjects into comparison groups on the basis of their scores on each of the subscales of the Family Environment Scale. Analysis of variance could then be performed to determine whether similar results are obtained using this method of analysis.

4. Replicate this study and include the use of a self-esteem scale to determine possible differences or similarities between internal and external children's level of self-esteem. It would be interesting to determine whether an association exists between internal and external locus of control orientation and high and low levels of self-esteem in children.
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APPENDICES
APPENDIX A

Student Information Form

Note: These questionnaires are part of a study on attitudes and opinions of grade eight children. It is not a test; there are no right or wrong answers; and you do not have to put your name on the questionnaires. Your help in filling out the questionnaires would be greatly appreciated.

Please complete the questions below and then follow the instructions carefully.

1. What is your age? _______

2. What is your sex? Male ____ Female ____

3. Which of your parents live with you? [check one]
   Both ____ Just Mother ____ Just Father ____ None ____

4. How many children including yourself are in your family? ______

5. How old are your brothers, if any? ___ ___ ___

6. How old are your sisters, if any? ___ ___ ___
APPENDIX B

NOWICKI-STRICKLAND PERSONAL REACTION SURVEY

1. Do you believe that most problems will solve themselves if you just don't fool with them?
   Yes ___ No ___  [Yes]*

2. Do you believe that you can stop yourself from catching a cold? Yes ___ No ___  [No]*

3. Are some kids just born lucky?
   Yes ___ No ___  [Yes]*

4. Most of the time do you feel that getting good grades means a great deal to you?
   Yes ___ No ___  [No]*

5. Are you often blamed for things that just aren't your fault?
   Yes ___ No ___  [Yes]*

6. Do you believe that if somebody studies hard enough he or she can pass any subject?
   Yes ___ No ___  [No]*

7. Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?
   Yes ___ No ___  [Yes]*

8. Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?
   Yes ___ No ___  [Yes]*

9. Do you feel that most of the time parents listen to what their children have to say?
   Yes ___ No ___  [No]*

10. Do you believe that wishing can make good things happen?
    Yes ___ No ___  [Yes]*

11. When you get punished does it usually seem it's for no good reason at all?
    Yes ___ No ___  [Yes]*

12. Most of the time do you find it hard to change a friend's [mind] opinion?
    Yes ___ No ___  [Yes]*

13. Do you think that cheering more than luck helps a team to win?
    Yes ___ No ___  [No]*

14. Do you feel that it's nearly impossible to change your parent's mind about anything?
    Yes ___ No ___  [Yes]*

15. Do you believe that your parents should allow you to make most of your own decisions?
    Yes ___ No ___  [No]*
16. Do you feel that when you do something wrong there is very little you can do to make it right?  
   Yes ___ No ___  [Yes]*

17. Do you believe that most kids are just born good at sports?  
   Yes ___ No ___  [Yes]*

18. Are most of the other kids your age stronger than you are?  
   Yes ___ No ___  [Yes]*

19. Do you feel that one of the best ways to handle most problems is just not to think about them?  
   Yes ___ No ___  [Yes]*

20. Do you feel that you have a lot of choice in deciding who your friends are?  
   Yes ___ No ___  [No]*

21. If you find a four leaf clover do you believe that it might bring you good luck?  
   Yes ___ No ___  [Yes]*

22. Do you often feel that whether you do your homework has much to do with what kind of grades you get?  
   Yes ___ No ___  [No]*

23. Do you feel that when a kid your age decides to hit you, there’s little you can do to stop him or her?  
   Yes ___ No ___  [Yes]*

24. Have you ever had a good luck charm?  
   Yes ___ No ___  [Yes]*

25. Do you believe that whether or not people like you depends on how you act?  
   Yes ___ No ___  [No]*

26. Will your parents usually help you if you ask them to?  
   Yes ___ No ___  [No]*

27. Have you felt that when people were mean to you it was usually for no reason at all?  
   Yes ___ No ___  [Yes]*

28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today?  
   Yes ___ No ___  [No]*

29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them?  
   Yes ___ No ___  [Yes]*

30. Do you think that kids can get their own way if they just keep trying?  
   Yes ___ No ___  [No]*
31. Most of the time do you find it useless to try to get your own way at home?
   Yes ___ No ___  [Yes]*

32. Do you feel that when good things happen they happen because of hard work?
   Yes ___ No ___  [No]*

33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters?
   Yes ___ No ___  [Yes]*

34. Do you feel that it's easy to get friends to do what you want them to?
   Yes ___ No ___  [No]*

35. Do you usually feel that you have little to say about what you get to eat at home?
   Yes ___ No ___  [Yes]*

36. Do you feel that when someone doesn't like you there's little you can do about it?
   Yes ___ No ___  [Yes]*

37. Do you usually feel that it's almost useless to try in school because most other children are just plain smarter than you are?
   Yes ___ No ___  [Yes]*

38. Are you the kind of person who believes that planning ahead makes things turn out better?
   Yes ___ No ___  [Yes]*

39. Most of the time, do you feel that you have little to say about what your family decides to do?
   Yes ___ No ___  [Yes]*

40. Do you think it's better to be smart than to be lucky?
   Yes ___ No ___  [No]*

* All items are answered in an external direction.
FAMILY ENVIRONMENT SCALE FORM R
MAY BE OBTAINED FROM:
CONSULTING PSYCHOLOGISTS PRESS, INC.
577 COLLEGE AVE., PALO ALTO, CALIFORNIA 94306
APPENDIX C

A SOCIAL CLIMATE SCALE

FAMILY
ENVIRONMENT SCALE
FORM R

RUDOLF H. MOOS

INSTRUCTIONS

There are 90 statements in this booklet. They are statements about families. You are to decide which of these statements are true of your family and which are false. Make all your marks on the separate answer sheets. If you think the statement is True or mostly True of your family, make an X in the box labeled T (true). If you think the statement is False or mostly False of your family, make an X in the box labeled F (false).

You may feel that some of the statements are true for some family members and false for others. Mark T if the statement is true for most members. Mark F if the statement is false for most members. If the members are evenly divided, decide what is the stronger overall impression and answer accordingly.

Remember, we would like to know what your family seems like to you. So do not try to figure out how other members see your family, but do give us your general impression of your family for each statement.
1. Family members really help and support one another.
2. Family members often keep their feelings to themselves.
3. We fight a lot in our family.
4. We don’t do things on our own very often in our family.
5. We feel it is important to be the best at whatever you do.
6. We often talk about political and social problems.
7. We spend most weekends and evenings at home.
8. Family members attend church, synagogue, or Sunday School fairly often.
9. Activities in our family are pretty carefully planned.
10. Family members are rarely ordered around.
11. We often seem to be killing time at home.
12. We say anything we want to around home.
13. Family members rarely become openly angry.
14. In our family, we are strongly encouraged to be independent.
15. Getting ahead in life is very important in our family.
16. We rarely go to lectures, plays or concerts.
17. Friends often come over for dinner or to visit.
18. We don’t say prayers in our family.
19. We are generally very neat and orderly.
20. There are very few rules to follow in our family.
21. We put a lot of energy into what we do at home.
22. It’s hard to “blow off steam” at home without upsetting somebody.
23. Family members sometimes get so angry they throw things.
24. We think things out for ourselves in our family.
25. How much money a person makes is not very important to us.
26. Learning about new and different things is very important in our family.
27. Nobody in our family is active in sports, Little League, bowling, etc.
28. We often talk about the religious meaning of Christmas, Passover, or other holidays.
29. It’s often hard to find things when you need them in our household.
30. There is one family member who makes most of the decisions.
31. There is a feeling of togetherness in our family.
32. We tell each other about our personal problems.
33. Family members hardly ever lose their tempers.
34. We come and go as we want to in our family.
35. We believe in competition and “may the best man win.”
36. We are not that interested in cultural activities.
37. We often go to movies, sports events, camping, etc.
38. We don’t believe in heaven or hell.
39. Being on time is very important in our family.
40. There are set ways of doing things at home.
41. We rarely volunteer when something has to be done at home.
42. If we feel like doing something on the spur of the moment we often just pick up and go.
43. Family members often criticize each other.
44. There is very little privacy in our family.
45. We always strive to do things just a little better the next time.
46. We rarely have intellectual discussions.
47. Everyone in our family has a hobby or two.
48. Family members have strict ideas about what is right and wrong.
49. People change their minds often in our family.
50. There is a strong emphasis on following rules in our family.
51. Family members really back each other up.
52. Someone usually gets upset if you complain in our family.
53. Family members sometimes hit each other.
54. Family members almost always rely on themselves when a problem comes up.

55. Family members rarely worry about job promotions, school grades, etc.

56. Someone in our family plays a musical instrument.

57. Family members are not very involved in recreational activities outside work or school.

58. We believe there are some things you just have to take on faith.

59. Family members make sure their rooms are neat.

60. Everyone has an equal say in family decisions.

61. There is very little group spirit in our family.

62. Money and paying bills is openly talked about in our family.

63. If there's a disagreement in our family, we try hard to smooth things over and keep the peace.

64. Family members strongly encourage each other to stand up for their rights.

65. In our family, we don't try that hard to succeed.

66. Family members often go to the library.

67. Family members sometimes attend courses or take lessons for some hobby or interest.

68. In our family each person has different ideas about what is right and wrong.

69. Each person's duties are clearly defined in our family.

70. We can do whatever we want to in our family.

71. We really get along well with each other.

72. We are usually careful about what we say to each other.

73. Family members often try to one-up or out-do each other.

74. It's hard to be by yourself without hurting someone's feelings in our household.

75. "Work before play" is the rule in our family.

76. Watching T.V. is more important than reading in our family.

77. Family members go out a lot.

78. The Bible is a very important book in our home.

79. Money is not handled very carefully in our family.

80. Rules are pretty inflexible in our household.

81. There is plenty of time and attention for everyone in our family.

82. There are a lot of spontaneous discussions in our family.

83. In our family, we believe you don't ever get anywhere by raising your voice.

84. We are not really encouraged to speak up for ourselves in our family.

85. Family members are often compared with others as to how well they are doing at work or school.

86. Family members really like music, art and literature.

87. Our main form of entertainment is watching T.V. or listening to the radio.

88. Family members believe that if you sin you will be punished.

89. Dishes are usually done immediately after eating.

90. You can't get away with much in our family.
APPENDIX D

Answer Sheet to the FES

| START HERE | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 1          | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 11         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 21         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 31         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 41         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 51         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 61         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 71         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |
| 81         | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F | T | F |

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