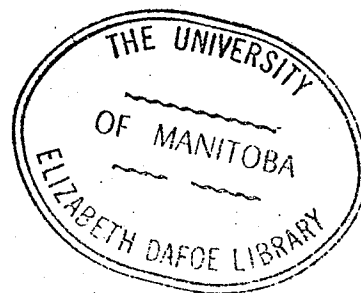


A SURVEY AND ANALYSIS OF SELECTED BACKGROUND FACTORS
INFLUENCING STUDENTS' DECISIONS TO ATTEND
THE MANITOBA INSTITUTE OF TECHNOLOGY

A THESIS
PRESENTED TO
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ABSTRACT

A survey of recent literature revealed that much effort has already been expended trying to understand the selective process by which individuals are recruited into various occupational fields and/or into educational programs and institutions considered preparatory for these positions. However, the survey also revealed a paucity of research on the forces which shape students' decisions to enter a relatively new, but crucially important form of training--technological training at the post secondary level. To help fill this gap the present study was undertaken.

The problem on the study was two-fold: first, to isolate factors which characteristically influence post secondary educational decisions and second, to determine whether the selected factors were significantly related to students' decisions to attend the Manitoba Institute of Technology. Accordingly, a review of pertinent literature was made on the basis of which the following relationships were hypothesized:

1. Students' decisions to attend the Manitoba Institute of Technology were significantly influenced by the following endogenous factors in their backgrounds: sex and scholastic performance.

2. Students' decisions to attend the Manitoba Institute of Technology were significantly influenced by the

following exogenous factors in their backgrounds: home situation, religious affiliation, ethnic origin, citizenship status, social status, educational level of parents, perceived attitudes toward the decision of parents, peers and teachers, and community of residence.

Data secured by means of a questionnaire which was administered to first-year technology students in June, 1966 was organized into frequency distribution tables. Both the chi square test and direct comparison (this was used only when appropriate "comparable" data were not available) were used for determining whether the obtained results were significant. Where a relationship was found to be significant, successive cross-tabulations were undertaken. The purpose of this further analysis was to detect spuriousness and/or to "specify" the obtained relationship.

The results of the study suggested the following principal conclusions: first, that there was a strong possibility that the obtained results were applicable not only to decisions to attend the M.I.T., but also to choices in other forms of post secondary education; second, that subtle and pervasive barriers to entry to high status educational goals still persist; third, that possibly as a consequence of the lack of information about and negative attitudes against technical education, some counsellors and teachers may have thwarted legitimate aspirations of their students.

The conclusions indicated a need for further research in the following areas: replication of the present study to substantiate the validity of the findings; an investigation into the reasons for the under-representation of girls and farm youth at the M.I.T.; a survey to determine the extent to which school personnel consciously or unwittingly dissuade students from taking technology courses; research using designs which focus intensively on the nature and dimensions of specific factors; and the development and validation of attitude scales for accurate measurement of parental, peer, and teacher reactions toward studentss' career decisions.

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CHAPTER I

THE PROBLEM

I. NEED FOR THE STUDY

A survey of recent reports reveals that substantial effort has already been expended in trying to understand the selective process by which individuals are recruited into the various occupational positions and/or educational programs and institutions considered preparatory for these positions. One important by-product of these efforts is a fairly comprehensive model of vocational selection; another is a vast body of qualitative and quantitative material bearing on the relationships between a variety of vocational correlates and some specific career decisions. On the other hand, the survey indicates that there exists a need not only for further refinement of the choice-making model, but also for replication of certain studies rendering them applicable to local conditions.

Most notably, however, the survey indicates a need to fill a heretofore neglected area in research on vocational selection--studies into the determinants of decisions to pursue technological training at the post secondary level. Indeed, an exhaustive search yielded only a handful of studies

pertinent to this problem.¹ Considered in the light of the relative newness of the technological training at the post secondary level, this neglect is perhaps understandable; viewed in the light of the cruciality of the technological element in assuring continued industrial expansion, this neglect can no longer be countenanced.

Those who are obliged to cope either directly or indirectly with the demands of the technological era in Manitoba need up-to-date quantitative data on, among other things, the factors which influence students to enrol at the Manitoba Institute of Technology. Administrators require this kind of information for planning suitable programs of instruction and facilities; guidance counsellors need it for assisting students to specify and make adequate preparation for entry into careers which are compatible with the needs of the students and those of the larger society; teachers need it for guiding them to choose instructional procedures which best develop the particular talents of their students.

¹Leila Sussman and Gars Norman Levine, "The Entering Freshman at the Massachusetts Institute of Technology: Class of '61" (mimeographed) No publication date given. Cited in David Gottlieb and Charles E. Ramsey, The American Adolescent (Homewood, Ill.: The Dorsey Press, 1964), p. 150; and Ruth Rice, "The Social and Educational Background and Anticipated Career Prospects of a Group of Students in a College of Advanced Technology," The British Journal of Educational Psychology, (November, 1964), pp. 259-267.

II. STATEMENT OF THE PROBLEM

In the 1965-66 school term 253 students enrolled in first-year technology courses at the Manitoba Institute of Technology. The problem of this study was to determine whether students' decisions to attend this institution were significantly related to two broad categories of factors in the students' backgrounds.

1. Are the following endogenous factors significantly related to the decision: sex and scholastic performance?
2. Are the following exogenous factors significantly related to the decision: home situation, religious affiliation, ethnic origin, citizenship status, social status, educational level of parents, perceived attitudes toward the decision of parents, peers and teachers, and community of residence?

III. DEFINITION OF TERMS

Some of the major terms used in this study are defined below. Additional terms are explained in their appropriate contexts.

Citizenship status. This refers to the length of time, as measured by generation, that the student's family has enjoyed Canadian citizenship. A student whose father was the first male ancestor to have acquired Canadian citizenship or to have established permanent residence (i.e., five years or

more) will be regarded as having second generation status.

M.I.T. This abbreviation refers to the Manitoba Institute of Technology, an educational institution providing technological training at the post secondary level.

Socioeconomic level. The socioeconomic level is considered to be the position that a family occupies with reference to the prevailing average standards of material and cultural possessions.

Student. In the context of this study, a student is a high school graduate who had enrolled in one of the first-year technology courses at the Manitoba Institute of Technology in the 1965-66 school term.

IV. ASSUMPTIONS

The use of the questionnaire is based on three assumptions: that students will respond to the questions or statements without bias; that students will give accurate biographical information, and that sufficient assurance of anonymity will have been given so that teacher distribution and collection of the questionnaire will not limit student response.

V. LIMITATIONS

This study is limited to the investigation of the specified factors only; no claim is made as to the exclusiveness of these factors in influencing students'

decisions to attend the Manitoba Institute of Technology.

Generalizations arising from this study apply only to those students who completed the questionnaire.

CHAPTER II

RELATED LITERATURE

Students' decisions to attend the M.I.T. could be conceived as a post secondary career choice. To shed some light on the dynamics involved in such a process and to provide the rationale for the selection of hypotheses that were investigated, the following two-part review is offered.

I. THEORETICAL RATIONALE

A. VOCATIONAL CHOICE PROCESS: A CONCEPTUAL MODEL

How does an individual arrive at a post secondary educational decision? Is the choice a function of chance, or is it a product of other discrete and predictable factors in the individual's background? If the latter, do these factors inhere in the individual, or do they emanate from sources outside the individual? Do they operate singly, or in combination with other factors? Do they operate in a haphazard, or in a patterned manner?

A close scrutiny of literature relative to the vocational choice process reveals four fairly distinct theoretical approaches to these preliminary questions.

External factors approach. According to this school, vocational selection is a function of chance and/or other factors external to the chooser. Kalana suggested that a lack of information on which to base their decisions was

responsible for many persons' "simply drifting into jobs."¹ Miller and Form asserted that "accident" is a major determinant of vocational placement; however, they also averred that a combination of work experiences, observations and expectations has some bearing on the choice of vocation.² Finally, Gottlieb and Ramsey theorized that the vocational choosing is frequently not a rational process, "but rather a multitude of minor decisions which add up to a commitment of a particular level."³

Inherent factors approach. In contradistinction to the view that vocational selection is largely a function of exogenous forces, supporters of the "Inherent Factors" school asserted that the selection of occupations is mainly, or entirely, subject to endogenous influences. Hoppock believed that occupational choices are influenced by an individual's desire to be more comfortable, and more satisfied or less frustrated.⁴ Vernon asserted that a person's occupation was

¹George Kalana, "Rational Behaviour and Economic Behaviour," Psychological Review, XL (1963), pp. 307-318.

²D.C. Miller and W.H. Form, Industrial Psychology (New York: Harper, 1964), pp. 576-578.

³David Gottlieb and Charles E. Ramsey, The American Adolescent (Homewood, Ill.: The Dorsey Press, Inc., 1964), p. 145.

⁴R. Hoppock and D.E. Super, "Vocational and Educational Satisfaction," cited in D.H. Friar and E.R. Henry, (eds.), Handbook of Applied Psychology (New York: Holt, Rinehart and Winston Inc., Vol. 1, 1950), pp. 126-134.

determined by basic drives.⁵ Bell, meanwhile, perceived vocational selection in terms of "ego involvement."⁶ Ginzberg observed that occupational selection can be understood by taking into account "early interests of a subconscious nature."⁷

Compromise approach. Another group of researchers have perceived vocational selection as a compromise process--a process entailing intricate inter-relationships between a variety of both exogenous and endogenous factors. To illustrate, Caplow suggested that occupational choosing can be understood in terms of two theoretical limits: individual characteristics, as determined by tests and observations, and father's occupation.⁸ Carter also asserted that personal dynamics as well as environmental realities enter into career decisions--he hypothesized that vocational attitudes develop when an individual attempts to adjust to environmental conditions.⁹

⁵Magdalen D. Vernon, "The Relationship of Occupation to Personality" British Journal of Psychology, XXXI (April, 1941), pp. 294-326.

⁶Hugh M. Bell, "Ego-Involvement in Vocational Decisions," Personnel and Guidance Journal, XXXVIII (May, 1960), pp. 732-736.

⁷Eli Ginzberg, Occupational Choice: An Approach to General Theory (New York: Columbia University Press, 1956), p. 21.

⁸Theodore Caplow, The Sociology of Work (Minneapolis, Minn.: The University of Minnesota Press, 1954), p. 235.

⁹Harold D. Carter, "The Development of Vocational Attitudes," Journal of Consulting Psychology, IV (January-February, 1940), pp. 185-191.

Haller identified several main categories influencing occupational choice: the chooser's personality (which includes one's conception of his ability and of the behaviour appropriate to his sex), immediate situation (which includes the accessibility of appropriate schools), the adequacy of financial support, and the expectations of parents, teachers and dominant culture.¹⁰

Developmental approach. Still another school of researchers have, likewise, explained vocational choice in terms of the interaction of exogenous and endogenous forces. However, the members of this group have been more explicit in the acknowledgement of the dynamic and complex nature of this interaction. For example, Blau and his associates hypothesized that occupational choosing is a "developmental process that extends over many years," during which span of time, the possible courses of action of the individual are continually being affected by two inter-related sets of factors--his valuations of the rewards offered by the different alternatives, and his appraisals of his chances of being able to realize each of the alternatives.¹¹

¹⁰Archibald O. Haller and Irwin W. Miller, "The Occupational Choice Process: A Sociological Review," cited in David Gottlieb and Jon Reeves, Adolescent Behaviour in Urban Areas: A Bibliographic Review and Discussion of Literature (East Lansing, Michigan: Michigan State University, 1962), p. 153.

¹¹Peter M. Blau, et al, "Occupational Choice: A Conceptual Framework," cited in Neil J. Smelser and William T. Smelser (eds.), Personality and Social Systems (New York: John Wiley and Sons, Inc. 1964), p. 560.

Ginzberg espoused the "developmental" approach in still more explicit terms. He said that the vocational choice process is divisible into three fairly distinct stages, each subject to a characteristic set of endogenous and/or exogenous correlates. More specifically, in the "fantasy" stage (from infancy to approximately age eleven) and in the "tentative" stage (from age twelve to approximately age seventeen) interests, aptitudes and value orientations form the bases for the individual's vocational decision. On the other hand, in the "realistic" stage (from approximately age seventeen onward until a definite commitment to a particular kind of training or actual entry into a particular occupation had been made) externally localized factors such as the family's socioeconomic, occupational and educational levels, the accessibility of appropriate educational institutions and peer and other reference groups are more frequently the bases for vocational choice.¹²

Finally, Super and his associates perceived vocational selection as a continuous, patterned and generally irreversible process involving the interaction and integration of numerous psychological, socioeconomic and cultural forces. In each of the major stages, the chooser performs a characteristic "developmental task." In early adolescence he translates the

¹²Ginzberg, op. cit., pp. 161-164.

concepts he has formed prior to this stage into occupational terms; in middle adolescence he examines his interests and abilities against a "backdrop of situational factors"; and in the final stage, after scrutinizing a multiplicity of factors emanating from within and without his person, he specifies a vocational preference.¹³

Conclusion. On the basis of this survey, it is postulated that post secondary educational decisions are the end-products of an on-going and fairly predictable interaction between a variety of endogenous and exogenous forces in the chooser's background.

B. FACTORS INFLUENCING CHOICE: THEORETICAL UNDERPINNINGS

In the foregoing section two categories of background forces that are believed to influence post secondary educational decisions were identified. What is the nature of these forces? Do they have a biological basis? Do they become manifest within, or apart from, the chooser's socioeconomic and cultural milieu?

Endogenous Factors

Sex. The phenomenon of vocational differentiation according to sex has been explained in both biological and sociological terms. Blanchard noted that the female's childbearing role, together with the relatively long

¹³Donald E. Super, The Psychology of Careers: An Introduction to Vocational Development (Harper and Row, 1957), pp. 183-196.

interruptions associated with its fulfillment, exclude her from numerous occupations she might otherwise pursue. Nor, this same researcher averred, is the sex influence restricted to differences in genital apparata. The female's proclivities towards concrete intuitive powers, receptiveness and reproductivity eminently suit her to engage in work requiring accuracy, devotion and personal attachment.¹⁴ On the other hand, the male's aptitudes of inventiveness, aggressiveness and abstractalogical talents fit him to enter occupations requiring ingenuity, mobility and social detachment.

Furthermore, possibly as a consequence of the inherent genital and psychological peculiarities of the two sexes, society has assigned them different vocational roles; the fulfillment of these expectations also has implications for career decisions. For example, the satisfactory discharging of the "breadwinner" responsibility usually affords the male no alternative but to work throughout most of his lifetime; moreover, it behoves him to choose his work mindful of the standard of living the remuneration received from it will provide his family.¹⁵ Neither of these considerations,

¹⁴M. Blanchard et al, "Familial and Other Influences in Occupational Planning," (unpublished Master's Thesis, McGill University, Montreal, 1957), p. 26.

¹⁵Arthur T. Jersild, The Psychology of Adolescence (second edition; New York: The MacMillan Company, 1963), pp. 358-359.

however, need be of more than peripheral significance to the female.¹⁶

Mental capacity. Mental capacity is probably the most fundamental of all the endogenous factors influencing vocational selection. No matter how it is considered--whether in its inherent or cultivated, primary or secondary, general or specific aspects--it is the principal limiting factor determining both the amount of education and, concomitantly, the level and type of occupation one can realize, other factors permitting.

Among the variety of ways used by researchers to measure and describe this factor for purposes of predicting vocational entry, a student's record of achievement in a particular course in high school appears to be, despite several obvious limitations, both the most practical and reliable.¹⁷ From the admission officer's point of view, the student's record of scholastic performance constitutes a concrete demonstration of a level of capability in a particular range of subjects. From the chooser's own standpoint, his academic record is also a useful criterion on which to base post high school

¹⁶James Cowhig et al, Orientations Toward Occupation and Residence, Special State Bulletin, 428 (East Lansing, Michigan: Michigan State University, 1960), p. 24.

¹⁷Frank E. Jones, The Social Bases of Education (Toronto, Ontario: The Canadian Conference on Children, 1965), p. 9. The author points out that such a record may not only fail to detect the spurious influence of other factors, but it may also neglect other vocationally relevant gains, such as creativity and devotion to learning.

educational decisions. One reason for this is that the student is usually only vaguely, if at all, informed about other and more sophisticated measures of ability.¹⁸ Moreover, Ginzberg, and his associates noted that an adolescent characteristically goes through a stage of appraising his potential success in fields he is considering in terms of his successes and/or failures in relevant school courses.¹⁹

Exogenous Factors

Familial factors. The relationship between this constellation of variables and vocational choice has been explained in terms of several "inheritances." As genetic psychologists inform us, the individual inherits from his parents not only a given physical appearance, but also a given level of general intelligence as well as a set of specific aptitudes and sex.²⁰ How these characteristics may bear on career decisions has been discussed briefly in the foregoing section.²¹

In addition, the individual acquires from his parents

¹⁸Dael Wolfe, "Educational Opportunity, Measured Intelligence and Social Background," cited in A.H. Halsey et al, Education, Economy and Society (New York: The Free Press of Glencoe, 1961), p. 224.

¹⁹Ginzberg, op. cit., p. 163.

²⁰Raymond G. Kuhlén and George C. Thompson, (eds.), Psychological Studies of Human Development (second edition; New York: Appleton - Century - Crofts, 1963), pp. 286-310.

²¹Supra, pp. 11-14.

a cluster of characteristics which derive from the parents' memberships in particular ethnic, religious and socioeconomic groups; these "inheritances" affect the process of socialization --a process in which biological potentialities are transferred into various vocationally relevant behaviour patterns.²²

"Achievement Syndrome" is one such vocationally relevant characteristic which an individual "inherits" from his family. According to Rosen this complex consists of three components and is a product of the kind of training a child receives in the various stages of his development. If in the emotional and un verbalized stages of his development the child is encouraged to perform at high standards and given ample opportunities to make decisions, he will likely acquire a high level of "achievement motivation." Further, if at the verbalized stage the child is also taught to value and seek to attain such attributes as power, prestige and wealth, he will probably acquire two other components of the specified syndrome--"value orientations" and "educational and occupational aspirations." Together these "inheritances" will not only encourage the child to excel but will also guide his "excelling" toward desirable (i.e., high) occupational goals.²³

²²Smelser and Smelser, op. cit., p. 567.

²³Bernard C. Rosen, "The Achievement Syndrome: Psycho-Cultural Dimensions of Social Stratification," American Sociological Review, Vol. XI, No. 2 (April, 1956), pp. 203-211.

Language development is another "inheritance" which is a function of parental group affiliation and which powerfully conditions career goals. According to Bernstein, the conditioning power of this variable derives chiefly from the fact that it is the means by which the diverse influences of the child's sociocultural environment are synthesized and learned. If, as is most frequently the case in lower class families, the child's environment is impoverished, his language development will likely be restricted to responding to concrete, immediate and particularized properties of objects. If, on the other hand, as is more characteristic of middle class families, the child's environment is richer, more complex, he will additionally learn to respond to the abstract, categorical and relational properties of things.²⁴ These differences in the quality of language development, according to Davis, help to account for distinct class differences in the mastery of various school curricula.²⁵

According to several writers, "climate of success" is still another vocationally relevant "inheritance" which is related to the kinds of memberships enjoyed by the parents. Jones and Rosen, for example, contended that parents who had

²⁴Basil Bernstein, "Social Class and Linguistic Development: A Theory of Social Learning," cited in Halsey et al, op. cit., pp. 288-314.

²⁵Allison Davis, Social Class Influence Upon Learning (Cambridge: Harvard University Press, 1950), pp. 78-83.

themselves secured entry into educational and occupational elites are usually better enabled and more disposed to provide their children with material and moral encouragement than are parents who had realized these same goals to lesser degrees.²⁶ Kahl, approaching the relationship from the opposing direction, offered a similar observation. He hypothesized that parents who had emigrated from societies or regions in which opportunities for success were strictly curtailed by social structure or in which extensive temporal acquisitions were discouraged for religious or other similar reasons tended to transmit habits of resignation and fatalism to their children. Such habits, this writer asserted, are generally more conducive to the denigration of, rather than to the attainment of, high status occupational goals.²⁷ Finally, Clark claimed that an impoverished family milieu (economic, social and cultural) has an adverse effect upon the individual's chances for realizing his potential in yet another way; such circumstances militate against the formation of a healthy (i.e. positive) self-image.²⁸

²⁶Jones, op. cit., p. 30; and Rosen, op. cit., pp. 203-211.

²⁷Joseph Kahl, "Motivation and Education," cited in Robert R. Bell, (ed.), A Sociology of Education - A Source Book (Homewood, Illinois: The Dorsey Press, Inc. 1962), pp. 147-166.

²⁸Kenneth B. Clark, "Education Stimulus of Racially Disadvantaged Children," cited in A. Harry Passow, Education in Depressed Areas (New York: Columbia University Teachers' College Press, 1963), p. 148.

Non-familial factors. Socialization, however, is not confined to the home; associations with peers and teachers constitute other sources whence the individual acquires vocationally relevant behaviour patterns. Nor, as Smelser and Smelser remind us, are these patterns independent of the neighbourhood in which the individual's family resides.²⁹

The relationship between peer group affiliation and career decisions has been variously explained. Coleman stated that such relationships derive from the ill-defined position of the adolescent in contemporary North American society; this predicament frustrates the individual and impels him to seek entry into a peer subculture.³⁰ According to another writer, peer groups are manifestation of pervasive psychological needs for approval and acceptance. If the satisfaction of these needs is not forthcoming from the home or school, a situation most frequently found among children of broken or lower class homes, the individual will invariably seek membership in a subculture which affords him gratification of these needs.³¹ Still another writer explained the peer group phenomenon in terms of two kinds of relationships, both

²⁹Smelser and Smelser, op. cit., pp. 567-568.

³⁰James S. Coleman, The Adolescent Society: The Social Life of the Teenager and Its Impact on Education (New York: The Free Press of Glencoe, 1962), pp. 311-313.

³¹David and Pearl Ausubel, "Ego Development Among Segregated Negro Children," cited in Passow, op. cit., p. 112.

of which, he believed, are requisites for successful socialization. The first type of relationship, that between unequals, is inevitably first laid down through identification with parents. This type of relationship is basic to the individual's acquisition of absolute standards of conduct. The second kind of relationship, that between generation equals, meanwhile, provides the individual with a framework for relative standards of conduct.³²

Teacher influence upon career decisions has been explained in terms of several correlates. Christiansen et al claimed that the discipline a teacher imposes on the student often affects not only the efficiency of the learning experience but also the general attitude of the student toward education.³³ Both Haller and Bertrand claimed that the teacher's influence stems from his instrumentality (this instrumentality derives from his access to a vast and complex repertory of rewards and punishments) in affecting the student's self-image: if it is positive, it impels the student to seek high status goals; if it is negative, it "traps" the student in a low-grade pattern, causing him to develop modest

³²Jean Piaget, The Moral Judgement of the Child (New York: Collier Books), 1962, cited in Jones, op. cit., p. 6.

³³John R. Christiansen et al, Educational and Occupational Aspirations of High School Seniors in Three Central Utah Counties, Social Science Research Bulletin No. 1 (Washington, U.S.A. Department of Agriculture, June, 1962), p. 9.

aspirations.³⁴ Gottlieb and Ramsey argued that the teacher's influence stems from the opportunities his position affords him to proffer students who are desperate for acceptance subsidiary outlets for status.³⁵ Finally, Super,³⁶ and Ausubel and Ausubel perceived teachers as parent substitutes, the latter averring that this phenomenon would be particularly common in instances where, for such reasons as broken marriages and inter-generational stresses, the children had become desatellized from their parents.³⁷

The relationship between career decisions and community of residence has been explained in terms of three major correlates. Gottlieb and Ramsey believed that the relationship between these two variables is a function of the "life experiences" afforded by the various types of communities. These writers hypothesized that, because urban communities generally provide greater opportunities for intellectual stimulation, its students are encouraged to

³⁴Archibald D. Haller, Rural Youth Need Help in Choosing Occupations, Circular Bulletin 235 (East Lansing: Michigan State University, 1963), p. 3; and Alvin L. Bertrand, "School Attendance and Attainment: Function and Dysfunction of School and Family Social System," Social Forces, XL, (1962), pp. 228-233.

³⁵Gottlieb and Ramsey, op. cit., p. 86.

³⁶Super, op. cit., p. 528.

³⁷David and Pearl Ausubel, cited in Passow, op. cit., p. 112.

aspire to occupations necessitating longer educational preparation. On the other hand, because residents of rural communities tend to regard work as a positive virtue, their children are encouraged to enter the workaday world as soon as possible.³⁸ In a more recent work, however, Hendriks declared that rural and urban people are "tending more and more to share mutually interdependent and similar sets of life experiences."³⁹

Stanley observed that the physical situations of the families of rural areas differed from those of the families of the urban communities. He pointed out that the home in rural areas serves not only as a site for family relationships but also as a base for the family's business operations, whereas the home in the urban community rarely combines the two functions. These differences help to explain why rural boys evince a greater tendency to follow their father's occupation than do urban boys.⁴⁰

Other writers have described how the socioeconomic and cultural characteristics of the communities affect both the

³⁸Gottlieb and Ramsey, op. cit., pp. 74-76.

³⁹Donald G. Hendriks, "Rural People's Understanding of ARDA and Its Purposes," (unpublished Master's Thesis, The University of Guelph, Guelph, 1966), p. 4.

⁴⁰William O. Stanley (ed.), Social Foundations of Education (New York: Henry Holt and Company, 1956), pp. 111-112.

floors and the ceilings of their residents' ultimate educational achievements. Rogoff postulated a relationship between the social class composition of a community and the informal and formal provisions it makes for the education of its residents. She believed that, because of their greater wealth, middle class suburbs generally foster higher aspirations and provide greater opportunities for the actualization of these aspirations than do lower class communities.⁴¹ Along similar lines, Geschwind and Ruthan asserted that the degree of success which an individual achieves in expressing his social and economic aims is associated with the opportunities and impediments he experiences in his community of residence.⁴² Finally, Davis stated that rural people's desire to improve their community is closely related to the economic status of that community.⁴³

Conclusion. The foregoing review, has shown that the endogenous influences derive primarily from biological sources, while the endogenous influences are products of interactions,

⁴¹Natalie Rogoff, "Public Schools and Equality of Opportunity," Journal of Educational Sociology, Vol. 33, No. 36 (1960), pp. 252-259.

⁴²R.D. Geschwing and V.W. Ruttan, Job Mobility and Migration in a Low-Income Rural Community, (Purdue University), cited in Henriks, op. cit., p. 13.

⁴³Lloyd H. Davis, Motivation of Local Initiative and Self-Reliance in Rural Area Development, cited in Henriks, ibid., p. 15.

within the context of socialization, between two or more of the following kinds of forces: biological, psychological, cultural and socioeconomic.

II. EMPIRICAL RATIONALE

In the preceding section the theoretical rationale of the background factors which are believed to influence vocational decisions was presented. But, do empirical findings bear out the existence of these factors? Have the factors been isolated and subjected to quantitative analysis? If so, how were they related to the various occupational goals?

With a view to providing a guide for the formulation of the research hypotheses for this study, a review of literature bearing on the questions asked in the above paragraph is given. The non-Canadian research (in practically all instances this will mean American research) will be reviewed first; then the Canadian research will be reviewed. Specific data will be cited only in instances where they appear to have particular relevance for the present study.

Although the factors selected for review will be discussed separately, it is recognized that they may interact in varying ways in the process of vocational development.

Endogenous Factors

Sex. Quantitative data generally corroborates the theories explaining occupational differentiation according to sex. In a study of career preferences and fields of entry of

girls, Powell and Bloom reported the following results: the three fields most often preferred by girls were office work (21 percent), teaching (15 percent) and nursing (13 percent); as far as actual work plans were concerned, 28.8 percent planned to do clerical work, 16.9 percent to teach, 12.8 percent to take up nursing and 5.5 percent to become housewives.⁴⁴ Pavolko, in a recent study involving a Canadian sample, also found girls to evince a definite preference for service-oriented fields.⁴⁵ In a similar study, Rosenberg discovered that girls who depart drastically from characteristic patterns, i.e., those who place career above family, tend to have value systems similar to those of males.⁴⁶

Mental capacity. The proposition that there is a clear, albeit imperfect, relationship between mental capacity and occupational choice has been firmly substantiated in both the United States and Canada. Perhaps the most representative study insofar as comprehensiveness of sample is concerned was that undertaken by Stewart in the United States. Comparing

⁴⁴Marvin Powell and U. Bloom, "Development of and Reason for Vocational Choices of Adolescents Through the High School Years," Journal of Educational Research, Vol. 56, (1962), pp. 126-133.

⁴⁵Ronald M. Pavolko and David R. Bishop, "Socioeconomic Status and College Plans: A Study of Canadian High School Students," Sociology of Education, Vol. 39, No. 3, (Summer, 1966), pp. 288-298.

⁴⁶Morris Rosenberg, Occupations and Values, (New York: The Free Press of Glencoe), 1957, cited in Gottlieb and Ramsey, op. cit., p. 150.

Army General Classification Tests (A.G.C.T.) scores of army personnel with their occupations, Stewart demonstrated that the average intelligence of members of different occupations may be arranged in a hierarchy according to these averages. She further showed that there is much overlapping in the range of scores between the different occupational groups.⁴⁷ In Canada, following an extensive review of the factors bearing on educational behaviour, Jones reached an essentially similar conclusion--that in this society there is a level of intelligence and education commensurate with a level of occupations.⁴⁸

Curriculum followed in high school. Experience with particular school subjects has been found to influence vocational choice. In his state-wide study, Berdie showed that students taking "college preparatory" courses generally planned to attend university, whereas those taking "commercial" courses tended to plan on enrolling in business colleges.⁴⁹ Cooley asserted that "the career choices of British students were also evidently influenced in many instances by school

⁴⁷N. Stewart, "A.G.C.T. Scores of Army Personnel Grouped by Occupations," Occupations, No. 26, (1947), pp. 5-41.

⁴⁸Jones, op. cit., p. 9.

⁴⁹Ralph F. Berdie, After High School - What? (Minneapolis, Minnesota: The University of Minnesota Press), 1954, pp. 130-155, 169.

course experience."⁵⁰ Likewise, Wilson found that English secondary students frequently named preferred courses in school as a reason for their occupational selection.⁵¹

Exogenous Factors

"Home Situation". The findings on the relationship between this factor and the educational and occupational behaviour of youth are both scant and inconsistent. Dynes et al found unsatisfactory interpersonal relations in the family of orientation to be directly associated with higher occupational aspiration levels.⁵² On the other hand, Siemens found that while a slightly higher proportion of high school boys from "broken" homes aspired to university, "home situation" had no significant bearing on high school girls' educational aspiration levels. Nor did this factor appear to be significantly related to occupational aspirations of these students.⁵³ McClelland and his associates concluded from an

⁵⁰W.W. Cooley, "Current Research on the Career Development of Scientists," Journal of Counselling Psychology, Vol. 11, (1964), pp. 88-93.

⁵¹Robert C. Wilson and William R. Morrow, "School and Career Adjustment of Bright High-Achieving and Under-Achieving High School Boys," Journal of Genetic Psychology, No. 101, (1962), pp. 91-103.

⁵²Russel Dynes et al, "Levels of Occupational Aspiration: Some Aspects of Family Experience as a Variable," American Sociological Review, 21, (1956), pp. 212-214.

⁵³Leonard B. Siemens, The Influence of Selected Family on the Educational and Occupational Aspiration Levels of High School Boys and Girls, No. I, (Winnipeg, Manitoba: University of Manitoba, June, 1965), p. 72.

intensive study of thirty male college students that "felt lack of love" was positively associated with high achievement motivation. However, in applying the same study to high school boys, these researchers found the reverse to obtain.⁵⁴

Chabossol, in an Alberta study, also reported that most underachievers believed they had been rejected by one or both of their parents.⁵⁵

Religious affiliation. On the basis of several studies, religion appears to bear on some post high school plans. Berdie cites two studies which substantiate this view. The more comprehensive of these is the American Council of Education (A.C.E.) study, according to which 68 percent of high school graduates coming from Jewish, 36 percent coming from Protestant and 25 percent coming from Catholic homes applied for admission to college. Stetter's smaller scale study fully corroborates the A.C.E. findings; 87 percent of the Jewish, 63 percent of the Protestant and 57 percent of the Catholic high school graduates of Connecticut applied for admission to college.⁵⁶

⁵⁴David McClelland et al, The Achievement Motive (New York: Appleton - Century - Crofts, 1953), p. 279.

⁵⁵D.J. Chabassol, "Correlates of Academic Under-Achievements in Male Adolescents," Alberta Journal of Educational Research, 9 (1959), pp. 130-146.

⁵⁶Berdie, op. cit., p. 20.

In Canada, Siemens, investigating the relationship between religious background and educational aspirations came to conclusions essentially similar to those reached in the United States. Among the male high aspirers, the Protestants outnumbered the Catholics and Orthodox by a ratio of approximately three to two. Likewise, the girls' educational aspirations were significantly, though not to the same degree, related to their religious origins.⁵⁷ Furthermore, Siemens and Jackson have provided data which indicates that religious differences persist insofar as post high school plan fulfillment is concerned. They reported, first, that while 58 percent of the Protestant youth realized their plans to attend university, only 23 percent of the Catholic youth did so; second, 47 percent of the Protestants enrolled in non-university courses which were considered to constitute the fulfillment of their plans, whereas 33 percent of the Catholics enrolled in such courses.⁵⁸

Ethnic affiliation of parents. The findings respecting this factor's influence upon students' educational and occupational behaviour are, on the whole, inconclusive. Marshall and his associates, in a study of rural youth in

⁵⁷Siemens, op. cit., p. 146.

⁵⁸Leonard B. Siemens and J.E. Winston Jackson, Educational Plans and Their Fulfillment: A Study of Selected High School Students in Manitoba, No. 2, (Winnipeg: Faculty of Agriculture and Home Economics, University of Manitoba, September, 1965), p. 36.

Wisconsin, found that "the heavier the proportion of German, Belgian, Polish and Swiss, the lower the school attendance." This same group, approaching this question from the point of view of attitudes toward high school education, offered the following observations: First, that, as a group, Anglo-Americans were more favorably disposed toward high school education than were persons of mixed ethnic backgrounds; second, that ethnicity was found to be associated with positive attitudes toward high school only among individuals of high socioeconomic status who themselves had attended high school.⁵⁹ Further, from the point of view of immediate post high school plans, Berdie found that bilingualism had a slight negative influence on college plans and slightly increased the probability that the student would plan on working after he had graduated from high school.⁶⁰

Three Manitoba studies relevant to the relationship between ethnicity and educational behaviour were located. In the earliest of these, Reid demonstrated that there were definite ethnic differences insofar as both illiteracy levels and attendance at secondary schools, teacher training institutions and university are concerned. The Anglo-Saxons

⁵⁹D.G. Marshall, W.H. Sewell and A.O. Haller, "Factors Associated with High School Attendance of Wisconsin Farm Youth," Rural Sociology, 18, (1953), pp. 257-260.

⁶⁰Berdie, op. cit., p. 139.

and Hebrews had the lowest illiteracy rates, and exceeded their quotas in the institutions of higher learning. The Germans, Scandinavians and French had the second lowest illiteracy rates and generally reached their attendance quotas at the specified institutions. The Central Europeans had the highest illiteracy levels and generally failed to reach their attendance quotas.⁶¹

In the second of these studies, Siemens observed that in general, the Icelandic youth had the highest educational and occupational aspiration levels; British and German youths had the second highest and the Ukrainian and Russian youths had the lowest educational and occupational levels. However, in no instances was the percentage difference between ethnicity and the selected educational variables statistically significant.⁶² Nor, according to a third and related study, was there any statistically significant relationship between ethnic origin and university plan fulfillment. On the other hand, non-university plan fulfillment was only statistically related to ethnic origin.⁶³

Socioeconomic level. There is ample evidence that students from families of higher socioeconomic levels tend to

⁶¹Ernest Harvey Reid, "A Comparative Study of Secondary and Higher Educational Interests Among the Different Racial Groups of Manitoba (unpublished Master of Education Thesis, University of Manitoba, Winnipeg, 1937), p. 55.

⁶²Siemens, op. cit., p. 73.

⁶³Siemens and Jackson, op. cit., p. 37.

score higher on various tests of academic ability. In the United States, Neugarten, and Hollingshed reported direct relationships between socioeconomic status and scores attained on I.Q. tests,⁶⁴ while Mueller and Mueller and Warner and his associates found that students of the higher classes tended to monopolize the upper ranks in scholastic performance. In Britain, Jahoda, using findings from a vast array of research undertakings in this field, reported equally strong associations between class and ability levels.⁶⁵ Canadian research on this topic is scant. Nevertheless, as affirmed by Porter, there is enough research from other industrialized societies to suggest that such associations between class and ability may be characteristic of all industrialized societies.⁶⁶

Students' valuations of achievement and education were

⁶⁴Bernice L. Neugarten and Robert J. Havighurst, Society and Education, (2nd Ed.) (Boston: Allyn and Bacon, Inc., 1962), p. 223; and August B. Hollingshed, Elm Town's Youth (New York: John Wiley and Sons, 1949), pp. 174-175.

⁶⁵Kate H. Mueller and John H. Mueller, "Class Structure and Academic and Social Success," Educational and Psychological Measurements, 13 (1953), pp. 486-496; W. Lloyd Warner, Robert J. Havighurst and Martin Loeb, Who Shall Be Educated? (New York: Harper and Bros., 1944), p. 81; and Gustav Jahoda cited in Ruth Rice, "The Social and Educational Background and Anticipated Career Prospects of a Group of Students in a College of Advanced Technology", British Journal of Educational Psychology, XI (1964), p. 267.

⁶⁶John Porter, The Vertical Mosaic: An Analysis of Social Class and Power in Canada (Toronto: University of Toronto Press, 1965), p. 197.

also found to vary according to the class positions of their parents. The American researchers, Morrow and Wilson, and Youmans have provided evidence in support of this generalization.⁶⁷ Other researchers, however, have provided reasons for regarding the reported findings with caution; Coster and Simpson for example, found that the difference in the valuations of education between the several income groups were not large enough to be statistically significant, while Sewell observed that when aspirations and expectations were distinguished in the questionnaire, the social class differences in aspirations are smaller than the class differences in expectations.⁶⁸

In Canada, Siemens came to a conclusion similar to that of his American counterparts--that socioeconomic status is positively and strongly related to students' post high school career aspirations and expectations.⁶⁹ However, in a subsequent study, Siemens and an associate found no significant

⁶⁷Morrow and Wilson, op. cit., pp. 91-103; and E. Grant Youmans, The Educational Attainment and Future Plans of Kentucky Rural Youth, Kentucky Agricultural Experimental Station Bulletin, (1959), p. 644.

⁶⁸John K. Coster, "Attitudes Towards School of High School Pupils from Three Income Levels," Journal of Educational Psychology, 49 (1958), pp. 61-66; Richard L. Simpson, "Parental Influence, Anticipatory Socialization and Social Mobility," American Sociological Review, 27 (1962), pp. 517-522; and William H. Sewell, The Educational and Occupational Perspectives of Rural Youth, (Washington, D.C.: National Committee for Children and Youth, 1963), Report 23, p. 4.

⁶⁹Siemens, op. cit., pp. 61-62.

relationship between socioeconomic standing and the fulfillment of educational plans.⁷⁰

Socioeconomic status has also been found to be a potent factor in determining the duration of the students' stay in school. On the basis of a review of studies of social class undertaken in the United States, Warner and his associates concluded that in all communities most of the students completing their final high school year are drawn principally from the upper classes. Further, these same researchers have reported that virtually all the children from the two upper classes go to university, while those of the two bottom classes rarely complete high school.⁷¹ Brookover and Gottlieb, however, have questioned the validity of these findings on two principal grounds: first, they criticize the overemphasis on this factor in accounting for many variations in educational behaviour, including the "drop-out" and "stay-in" phenomena; second, they deprecate the lack of attention that was given to making clear what there is in the students' socioeconomic backgrounds which would lead to the reported variations in educational behaviour.⁷²

⁷⁰Siemens and Jackson, op. cit., pp. 16-19.

⁷¹Warner, Havighurst and Loeb, op. cit., pp. 51-54, 66.

⁷²W.B. Brookover and David Gottlieb, "Social Class and Education," cited in W.W. Charters, Jr. and N.R. Gage, (eds.) Readings in the Social Psychology of Education (Boston: Allyn and Bacon, 1963), pp. 3-11.

Canadian research findings on this question practically parallel those cited above. According to an Ontario study of dropouts among students between grades seven and twelve, 29 percent of the boys and 20 percent of the girls belonging to families of "above-average" economic circumstances, in comparison to 78 percent of the boys and 74 percent of the girls belonging to families of "below-average" circumstances failed to complete high school.⁷³ In The Social Bases of Education, Jones cites several other studies conducted in specific, widely scattered regions in Canada which fully confirm the generalization that children of higher socioeconomic status parents are over-represented while those of parents of lesser means, are under-represented in high schools and colleges.⁷⁴

That the several curricula tend to draw differentially from the social class has been substantiated by many researchers. Summarizing class studies in five widely scattered communities in the United States, Warner and his associates reported a general tendency for the proportion enrolled in college preparatory courses to decrease from the highest to the lowest classes. These workers also showed that, though the actual proportions differed from community to community, the rank

⁷³Your Child Leaves School; Report No. 2 (Toronto: Canadian Research Committee on Practical Education, 1948), cited by Jones, op. cit., p. 13.

⁷⁴Jones, op. cit., pp. 11-17.

order remained the same. More recent studies by Davie, Miller and Stephanson confirm Warner's conclusions.⁷⁵

Father's occupational status. The prestige ratings of the father's occupation have been found to bear powerfully on the educational and occupational choices of children. Sewell, Haller and Strauss, in perhaps the most rigorously controlled and comprehensive study in its field, have concluded that the relationship between the level of aspirations and parental occupational status, with intelligence controlled, holds for both sexes and for both educational and occupational aspirations.⁷⁶ Rogoff concluded that, although the majority of the sons do not enter the same occupation as their fathers, they are nevertheless more likely to enter their father's occupation than any other. Jenson and Kirchner concur with Rogoff, indicating that sons tend to follow the general type of occupation their fathers had engaged in.⁷⁷ When they do not

⁷⁵Warner, Havighurst and Loeb, op. cit., pp. 61-62; J.S. Davie, "Social Class Factors and School Attendance," Harvard Educational Review, (1953), 23, pp. 175-185; Jerry L.L. Miller, "Occupational Choice and the Educational System," Journal of Educational Sociology, 34:3 (1960), pp. 117-126; and Richard M. Stephenson, "Stratification, Education and Occupational Orientation: A Parallel Study and Review," British Journal of Sociology, 9 (1958), pp. 42-55.

⁷⁶William H. Sewell, A.O. Haller and M.A. Strauss; "Social Status and Educational and Occupational Aspirations," American Sociological Review, 22 (1957), pp. 67-73.

⁷⁷Natalie Rogoff, op. cit., pp. 252-259; and P.G. Jenson and W.K. Kirchner, "A National Answer to the Question," 'Do Some Follow Their Fathers' Occupations'?" Journal of Applied Psychology, 39 (1955), pp. 419-421.

follow the fathers' occupations, Kroger and Loutit point out, the sons tend, in general, to enter an occupation of higher status than that of their fathers (provided their father's status is not already at the top of the occupational "totem pole").⁷⁸

In Canada, Porter noted that the length of school attendance is in large measure, a function of the father's occupational level. His data show that of the children between fourteen and twenty-four, those whose fathers belong to the two higher occupational classes tend to remain in school in approximately twice as many instances as is true for the children whose fathers are employed in the two lowest occupational classes. Siemens' data also suggest that the educational and occupational aspirations of both sexes are positively related to the fathers' occupational status.⁷⁹

Educational level of parents. In general, the parents' educational level appears to be closely related to students' post high school vocational plans. Sewell, Haller and Strauss have shown that approximately twice as many students coming from families ranking "high" in educational achievement had

⁷⁸R. Kroger and C.M. Loutit, "The Influence of Father's Occupation on the Vocational Choices of High School Boys," Journal of Applied Psychology, 19 (1935), pp. 202-212.

⁷⁹Porter, op. cit., pp. 103-129; and Siemens, op. cit., pp. 132-133.

college aspirations as was the case for students from parents of lesser educational attainment.⁸⁰ Further, Berdie found that the occupational aspiration levels of children varied, though not with complete consistency, with the modal education of their parents. To illustrate, students planning to "get jobs after high school", had parents whose modal education was less than grade eight; those (in this case, girls) planning to "go to business college" had parents whose modal level was "completion of grade eight"; students aspiring to college had parents whose modal level was "high school graduation".⁸¹

The findings from studies undertaken in several regions in Canada generally confirm American findings. Both Kaill and Flemming found that Ontario students of "high" achievement levels were born of parents having high educational attainments. Similarly, Larson, in an Edmonton study, found that 55 percent of the youth having at least one parent with a university degree completed grade twelve; whereas, only 35 percent of the youth whose parents belonged to the "unskilled" category completed

⁸⁰Sewell, Haller and Strauss, op. cit., pp. 67-73.

⁸¹Berdie, op. cit., pp. 128-129, 138-139, 168.

this level of education.⁸² Most recently, Siemens, in a Manitoba study, found highly significant relationships between high educational aspiration levels and parental education. In a follow-up study this same researcher and his associate reported results which demonstrate even more dramatically the strong relationship between the parental education level and children's educational aspiration levels. Approximately twice as many of the students whose fathers and mothers had achieved "above high school" standing had high educational aspiration levels as was the case for students whose parents had reached "public school" standing.⁸³

Parental encouragement. Studies of parental influence on students' occupational decisions may be placed into three categories. Those of Slocum, Watenburg, and Susman and Levine suggest that "more than any other factor, the ideas of parents

⁸²Robert Kaill, "An Inquiry Into the Relationship Between the Occupational Level of Parents, Their Attitude Toward Education and the Educational Achievement of the Child" (unpublished Master's Thesis, University of Guelph, Guelph; 1963), p. 20; W.G. Fleming, Atkinson Study of Utilization of Student Resources, Report No. 1, Background and Personality Factors Associated with Educational and Occupational Plans and Careers of Ontario Grade 13 Students (Toronto, Ontario: College of Education, 1957), p. 24; and H.L. Larson, "The Five-School Project Drop-Out Study," Alberta Journal of Educational Research, Vol. 4, No. 4 (1958), pp. 212-215.

⁸³Siemens, op. cit., p. 67; and Leonard B. Siemens and Leo Driedger, No. 4, Some Rural-Urban Differences Between Manitoba High School Students (Winnipeg, Manitoba: University of Manitoba, Faculty of Agriculture and Home Economics, December, 1965), p. 51.

influence youth in their choice of vocations."⁸⁴ Those of a second group, namely, those of Bordua and Kahl in the United States and Flynn and Siemens in Canada suggest that parental influence is directly related to children's career decisions.⁸⁵ Meanwhile, those of the third group suggest that this factor is functionally related to the parents' cultural and socioeconomic background. In this connection, Simpson found that 53 percent and 43 percent of ambitious middle and lower class boys respectively reported parental advice to aspire to high prestige occupations as compared to 21 percent and 16 percent among unambitious middle and lower class boys.⁸⁶

Peer group affiliation. On the basis of research located, it appears that peer group affiliation bears rather

⁸⁴Walter L. Slocum, "Occupational and Educational Plans of High School Seniors from Farm and Non-Farm Homes," (Washington, D.C.: Agricultural Experiment Stations Institute of Agricultural Sciences Bulletin 565, 1956), p. 36; William W. Watenburg, The Adolescent Years (New York: Harcourt, Brace and World, Inc., 1955), p. 359; and Leila Sussman and Gars Norman Levine, "The Entering Freshman at the Massachusetts Institute of Technology: Class of '61" (Mimeographed) No publication date given. Cited in Gottlieb and Ramsey, op. cit., p. 150.

⁸⁵David J. Bordua, "Educational Aspirations and Parental Stress on College," Social Forces, 38 (1960), pp. 262-269; J.A. Kahl, "Educational Aspirations of 'Common Man' Boys," Harvard Educational Review, 23 (1953), pp. 186-203; Bridgett E. Flynn, "A Survey of Drop-Outs from a Winnipeg Junior High School," (unpublished Master's Thesis, University of Manitoba, Winnipeg, Manitoba: 1963), p. 64; and Siemens, op. cit., pp. 138-139.

⁸⁶Simpson, op. cit., pp. 517-522.

significantly and multifariously on adolescents' career decisions; however, it does so most frequently as an adjunct of several other forces, rather than as a factor in its own right.

Several researchers have perceived the influence of this factor in the social context. On the one hand, Gottlieb and Ramsey have shown that peer groups reflect the educational and occupational values of the different social classes. These researchers devised a classificatory system which posits the existence of four main types of subcultures: the "vocational," which stresses preparation for an occupation; the "nonconformist," which emphasizes intellectual pursuits; the "academic," which values the intellectual aspect of education but also considers the social life of the school as a significant factor in his development; and the "collegiate," which places instrumental value on "good grades". These researchers went on to demonstrate that students from high socioeconomic backgrounds evinced a greater tendency to identify themselves with the "academic" subculture, while the lower class students were more frequently found in the vocationally oriented subcultures.⁸⁷

On the other hand, other researchers have perceived peer groups as agents of social mobility. Beilin found that high-aspiring boys of the working class tended to associate

⁸⁷Gottlieb and Ramsey, op. cit., pp. 192-194.

more frequently with middle class boys than with boys of their own class. Similarly, in a study of pairs of best friends drawn from a sample of seventeen-year-old American boys and controlled for intelligence, social class and the parental aspirations for their sons, Haller and Butterworth found that the tendency for friends to share like educational and occupational aspirations was strongest when both boys were drawn from the highest social class, next strongest when a higher and a middle class boy were best friends, next when a higher and a lower class boy were best friends; the similarity aspirations was less marked, however, in instances when both boys came either from the middle or the lower classes.⁸⁸

Teacher encouragement. According to several studies located, this factor has a very minimal bearing on students' post high school occupational plans, especially when compared to the influence of other factors. Powell found that most students had been "little helped or influenced vocationally by counsellors." Likewise, Berdie concluded that only approximately 10 percent of Minnesota students on the threshold of a variety of post high school vocational goals reported teachers or counsellors as determinants of the choice

⁸⁸Harry Beilin, "The Pattern of Responsibility and Its Relation to Social Class Mobility," Journal of Social Psychology, 44 (1956), pp. 33-48; and Archibald Haller and C.E. Butterworth, "Peer Influence on Levels of Occupational and Educational Aspirations," Social Forces, 38:4 (1960), pp. 289-295.

of their high school curricula.⁸⁹ Finally, in a Canadian study, Forcese and Siemens reported that, in the case of low and medium socioeconomic groups, teacher encouragement was associated with higher aspirations; but, in the case of children from the high socioeconomic groups, teacher encouragement seemed irrelevant.⁹⁰

Community of residence. The generalizations arising out of the review of this factor varied, for the most part, according to the manner in which the sample was categorized. In studies in which the sample was dichotomized into "rural" and "urban" components, there appeared to be a significant and, for the most part, linear relationship between the type of community of residence and the educational and occupational aspirations of boys and girls. For example, on the basis of ten studies--five relating to educational and five relating to occupational aspiration levels--conducted in the last decade and varying somewhat in their definitions of "aspiration" as well as in their sampling procedures, Siemens advanced the following generalizations: First, insofar as their educational aspirations were concerned, the farm youth tended to lag far behind the more urban segments of the population. Second,

⁸⁹Marvin Powell, The Psychology of Adolescence (New York: The Bobbs-Merrill Company Inc., 1963), pp. 126-133; and Berdie, op. cit., pp. 120, 131.

⁹⁰Siemens and Forcese, op. cit., pp. 18-19.

though the findings respecting the influence of the community of residence on the occupational aspiration levels generally reflected those regarding this factor's bearing on educational aspirations, they did so with less decisiveness; for boys higher occupational aspiration levels were frequently associated with urban parental residence; for girls, occupational aspiration levels were less often associated with rural-urban residence differences.⁹¹

The findings of the studies in which the community of residence variable was categorized more finely, however, parallel, with one major exception--a decrease in linearity--the findings reported above. Evidence supplied by both Berdie and Rogoff suggests that college-going aspiration is associated, though not strictly linearly, with larger communities.⁹² Similarly, Siemens found boys' and girls' educational and occupational levels to be related, albeit not linearly, to the size of their parents' communities of residence.⁹³

Conclusion. Numerous empirical studies showing relationships between a variety of endogenous and exogenous

⁹¹Siemens, op. cit., pp. 58-60.

⁹²Berdie, op. cit., pp. 178-231; and Natalie Rogoff, "Local Social Structure and Educational Selection," cited in A.H. Halsey, Jean Floud and C. Anderson, Education, Economy and Society: A Reader in the Sociology of Education, (New York: The Free Press of Glencoe, 1961), pp. 243-247.

⁹³Siemens, op. cit., pp. 58-60.

background factors and vocational selection were reviewed in this section. Close scrutiny reveals that this body of research had been undertaken over a wide range of years, that it varied, sometimes widely, in sampling and scaling techniques, and in the precise nature of the problems investigated. As a consequence of these and other less obvious methodological shortcomings, these studies do not permit making firm generalizations on any aspect of the problem under investigation. They did, however, point to the possibility of significant relationships between a number of factors and the decision to attend the M.I.T.

Summary

Chapter II was concerned with reviewing a wide array of studies on various aspects of vocational selection. From the review on theories of vocational choice, it was posited that a vocational choice could be perceived as a by-product of a fairly orderly interaction between two broad categories of factors in the chooser's background. The second section of the review, provided the theoretical substantiations for the existence of specific factors within the two broad categories; while the third section described the nature and dimensions of these factors' influence upon various post secondary educational decisions. In summary, this review provided the rationale for the selection of factors that were investigated in the present study.

On the basis of this review, it was hypothesized that sex, scholastic performance, home situation, religious affiliation, ethnic origin, citizenship status, social status, educational level of parents, reactions of parents, peers and teachers, and community of residence were significantly related to students' decisions to elect the M.I.T. as their post secondary training institution.

In the next chapter the methodology used to test the tenability of the hypothesized relationships is discussed.

CHAPTER III

METHODOLOGY

The purpose of this chapter is to state the hypotheses which were tested in this study, to discuss the design of the instrument used for collecting the data, and to discuss the techniques and procedures followed in analyzing the data.

I. NULL HYPOTHESES

Null Hypothesis I

There is no relationship between the decision to attend the M.I.T. and each of the following endogenous factors in the students' backgrounds: sex; scholastic performance.

Null Hypothesis II

There is no relationship between the decision to attend the M.I.T. and each of the following exogenous factors in the students' backgrounds: home situation; religious affiliation; ethnic origin; citizenship status; social status; educational level of parents; perceived attitudes toward the decision of parents, peers and teachers; community of residence.

II. COLLECTION OF THE DATA

The Instrument Used

The instrument used to collect the data required for testing the null hypotheses was a questionnaire comprised of forced choice and open-ended, scalable and non-scalable

questions, many of which are adapted from research done by Berdie in the United States and Siemens in Canada.¹

Scales Used in Conjunction with the Questionnaire

Two related requirements--uniformity of interpretation and amenability to statistical analyses--prompted the incorporation of three scales into this study. These are discussed below.

Home situation. All respondents who indicated that both of their parents were living and were neither separated nor divorced were regarded as having a "normal" home situation. Conversely, those students who indicated either that one or both of the parents were deceased or that the parents were living but separated or divorced were regarded as having a "broken" home situation.

Father's occupational status scale. To determine the father's occupational status, Blishen's "Occupational Class Scale" was utilized.² The occupations which the students ascribed to their fathers were ranked according to this seven-point scale.

¹Ralph F. Berdie, After High School--What? (Minneapolis: University of Minnesota Press, 1954), pp. 51-54; and Leonard B. Siemens, The Influence of Selected Family Factors on the Educational and Occupational Aspiration Levels of High School Boys and Girls, No. 1 (Winnipeg, Manitoba Faculty of Agriculture and Home Economics, University of Manitoba, June, 1965), pp. 120-125.

²Bernard R. Blishen, "The Construction and Use of an Occupational Class Scale," cited in B.R. Blishen et al,

The use of this scale in the present study may be justified on the grounds that Blishen himself had found the rank scores on his scale to correlate highly (+ .94) with the rank scores on an occupational status scale developed by the National Opinion Research Center in the United States.

One weakness in this scale is that, owing to a wide spread in their incomes (in addition to education, income is a criterion upon which Blishen's scale is constructed.) farmers defy easy categorization. However, as noted by Porter, if an "average" farmer can be imagined, he would probably assume a class level akin to that of skilled trades, i.e., Class V.³

Socioeconomic status scale. This scale, consisting of eleven diagnostic items of material and cultural nature, is an adapted version of Sewell's "Scale for the Measurement of Farm Family Socioeconomic Status."⁴

Because Siemens' sample consisted of urban as well as of rural youth and, further, because he was concerned that some of the items might no longer reliably discriminate between social classes, he made several modifications in

Canadian Society: Sociological Perspectives (Glencoe, Ill.: The Free Press, 1961), p. 452.

³John Porter, The Vertical Mosaic: The Analysis of Social Class and Power in Canada (Toronto: University of Toronto Press, 1965), p. 161.

⁴Siemens, loc. cit.

Sewell's scale. First, in view of the relatively extensive rural coverage and inexpensiveness of electrical power in Manitoba, he deleted "lighting facilities"; in its place he inserted "home ownership." Second, because radio ownership was a well nigh universal phenomenon in this province, Siemens replaced this item by two other cultural possessions-- "record player" and "television". Third, he deleted "husband's and wife's attendance at church or Sunday Schools" contending that, particularly in urban areas, this item was not likely a valid measure of social participation. Finally, because father's and mother's educational levels were to be two important variables in his study, Siemens deleted these items found in Sewell's scale.⁵

For the purpose of this study, each positive item was counted one point. In scaling the room-person item, a ratio of 1.3 or greater rooms per person was considered positive, as was the ownership of a 1964 or more recent model of automobile. If home construction was either brick, stucco or painted frame, this item was, likewise, considered positive. Further, this eleven-point scale was arbitrarily collapsed as follows: respondents who scored eleven points on this scale were assigned a status rank order of One; those who scored ten points were assigned a status rank order of Two, and so on.

⁵William H. Sewell, "A Short Form of the Farm Family Socio-Economic Status Scale," cited in Siemens, op. cit., p. 49.

Those who scored six or fewer points were designated a status rank order of Six.

Because this adapted version of Sewell's scale had not been statistically validated for a Manitoba population, it was only possible to assume that it was a reasonably reliable measure of socioeconomic status.

Pre-testing of the Instrument

With the view to detecting possible weaknesses in the questionnaire, it was administered to a group of about twenty-five grade twelve students. On the basis of this pre-testing, one minor clarification was made in question four (c); viz., "Interpret 'own' to mean either own outright, or in the process of buying a home."

Administering of the Instrument

Owing to the lateness in the school term, it was considered impractical to administer the instrument personally. With the consent of the Superintendent of the Manitoba Institute of Technology, an alternative plan was adopted. An instructor at the Institute, who had had experience in research, was briefed and assigned the task of administering the instrument.⁶ This task the instructor performed on two consecutive days in the early part of June, 1966.

As it had been anticipated, this plan yielded a high percentage (92.5 percent) of properly completed questionnaires;

⁶See Appendix C.

the one apparent exception to this being the "misanswering" of the questions intended to elicit information on attitudes of parents and teachers towards the students' decisions to attend the M.I.T. Instead of circling a response to each of the five statements in questions seventeen (a), seventeen (b), and question eighteen, respectively, some students merely circled a response to only one of the five statements in each of these questions.

III. TREATMENT OF THE DATA

Preparation of the Data for Analysis

The responses to questions three, four, twelve and sixteen⁷ were scaled and the responses to questions seventeen, eighteen and nineteen were recast so as to render them usable.⁸ These responses, together with the responses from the remaining questions, were coded and transferred to I.B.M. cards.

With the aid of a computer, the responses were counted, translated into percentages and organized into frequency distribution tables showing how each of the selected factors were related to the decision to attend the M.I.T.

Analysis of the Data

Rationale. The problem of the study was to determine

⁷These questions relate to home situation, socioeconomic level, occupational class and failure record in high school, respectively.

⁸The ways the responses to these questions were recast are described in their appropriate contexts in Chapter IV.

whether the hypothesized relationships between the selected background factors and students' decisions to attend the M.I.T. were significant. To this end, a two-stage plan of analysis was adopted. The first stage helped to rule out the probability that the relationships were functions of chance. The second stage helped to detect possible spurious relationships and/or to specify the conditions under which particular relationships held.

Procedure. The question whether the obtained relationships were significant was resolved in one of two ways. Where suitable parametric data were unavailable for determining the disposition of a particular relationship, direct comparison of the proportions of the variates was used as the basis for acceptance or rejection of the null hypothesis underlying that relationship. But, in instances where appropriate data were available (which was true of most instances) the chi square test of goodness of fit was used as the basis for deciding the disposition of the null hypotheses.

Where there was some chance, on the strength of a priori reasoning, theory, or empirical research, that the obtained relationships might have been colored by their association with other correlates of the decision to attend the M.I.T., the second stage of analysis was performed. Because of the inter-relatedness of correlates of vocational selection, this meant that practically every relationship

was subjected to this further analysis.

This second stage of analysis entailed setting up contingency tables in which the data for the relationship between the decision and the factor focused upon were cross-tabulated with data for the relationship between the decision and the hypothesized explanatory factor. To determine whether the association of factors in the table varied to a greater extent than could be expected by chance, the chi square test of independence was employed.

Additional Notes on the Analyses

The Yates correction was applied in chi square tests in which the expected frequencies failed to meet minimum cell requirements and/or in which there was only one degree of freedom.

The complete tables for each of the analyses reported in the test are found in the appendix--those pertaining to the first stage in Appendix A, those to the second stage in Appendix B.

In the interest of consistency and in some instances in the interest of minimum cell requirements, most of the contingency tables presented in the text were reduced to 2 x 2 tables. Where such reduction could not be justified on statistical grounds, the data were more finely categorized. Where the results of the table in the text and the table in the appendix differ essentially, i.e., where the results of one table do reach, while the results of the other table fail

to reach the .05 level of significance, this discrepancy is reported in the appropriate context.

IV. THE SAMPLE

On May 31, 1966, two hundred and fifty-three (253) students were registered in first-year technology courses at the M.I.T. Two hundred and thirty-four (234) of these students, representing 92.5 percent of the total, completed the questionnaire which was administered in June. Table I presents the frequency distribution of these students by sex, by age, and by course taken at the M.I.T.

Examination of the table reveals several interesting features: (1) that the school had a decidedly male clientele; (2) that while the students' ages ranged from seventeen and younger to twenty-one and older, approximately two-fifths fell into the eighteen or nineteen-years-old categories, further, that boys tended to be older than the girls, approximately four times as many boys as girls having fallen into the nineteen years or older categories; (3) and that Business Administration had the largest enrolment, while Chemical Technology and Electronic Technology had the smallest enrolment.

TABLE I

FREQUENCY DISTRIBUTION OF STUDENTS WHO ANSWERED THE QUESTIONNAIRE
BY AGE, BY SEX, BY COURSE TAKEN AT M.I.T.

Course	Age											
	17 & Under		18		19		20		21 & Over		Total	
	M	F	M	F	M	F	M	F	M	F	M	F
Business Administration	5		12	1	18		17		19		71	1
Secretarial Science		5		18		2		1		1		27
Chemical Technology			2	1	5	1	3	1	6		16	3
Civil Technology			6		10		10		9		35	
Electrical Technology	2		4		8		4		1		19	
Electronic Technology			13		8		7		11		39	
Mechanical Technology	1		3		5		7		7		23	
Total	8	5	40	20	54	3	48	2	53	1	203	31

CHAPTER IV

PRESENTATION AND ANALYSIS OF THE DATA

The purpose of this chapter is to present the relationships between the selected factors and students' decisions to attend the M.I.T.

I. INFLUENCE OF ENDOGENOUS FACTORS

Sex. The literature reviewed indicates that the sex variable may influence vocational decisions both independently of, as well as in conjunction with, other correlates. In the section immediately following, the question of the independence status of the sex variable is briefly considered. Throughout the succeeding sections of this chapter, the sex variable is used in a "control" capacity, the main purpose of this further investigation being to unmask possible spurious relationships between the remaining selected factors and the decision. In interpreting the results arising from the analyses of this variable, the reader is cautioned to make due allowances for the disparity in the proportions of the two sexes.

H_0 I: 1. There is no relationship between the sex of the students and their decisions to attend the M.I.T.

As shown in Table I, the proportion of males in attendance at the M.I.T. was approximately seven times greater than the proportion of females. These results appear to

warrant at least tentative rejection of the null hypothesis. Firmer conclusions on the question whether the observed relationship is an independent one or whether it is contaminated by extraneous forces must, however, await further research.

Scholastic performance. In this study, students' grade XII average was regarded as the primary measure of scholastic performance. However, because of the possibility of their exerting either an independent influence on or of contaminating the results of the analysis of the relationship between the grade XII average and the decision, three other measures of scholastic performance--course completed in high school, failure record in high school, and failure record in post-high school--were included in the analyses.

H_0I : 2.1. There is no relationship between scholastic performance, as measured by grade XII average, and the decision to attend the M.I.T.

To test this null hypothesis, students were asked to indicate which one of nine average ranges they achieved in grade XII final examinations. The responses were then collapsed into four broad categories, as illustrated in Table II. Examination of the results reveals that more than four-fifths of the 226 students (whose responses were classifiable as indicated) attained averages in the 50 - 69 percent range, while the remaining one-fifth attained averages in the 70 percent and over range.

To determine whether the observed distribution was

TABLE II
FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS
BY GRADE XII AVERAGE

Average Level	Number	Percent
50 - 59%	55	24
60 - 69%	133	59
70 - 79%	35	16
80% & over	3	1
Total	226	100

significant, the following analyses were carried out. The first analysis compares the averages of M.I.T. students who had completed the "University Entrance" course in grade XII with the average of a cohort of 4032 Manitoba students who on the basis of having written five University Entrance Course exams in June, 1966, had achieved averages of at least fifty percent and secured grade twelve standing.

Inspection of Table III reveals that M.I.T. students were under-represented in the lowest and the two highest categories, but substantially over-represented in the middle, i.e., the "60 - 69%" average category. The chi-square test indicates that the observed distributions were highly unlikely to have occurred by chance. However, in light of the differing sizes of the observed and theoretical frequencies such an interpretation can be entertained only with much caution.

TABLE III

OBSERVED AND THEORETICAL DISTRIBUTION OF STUDENTS
BY AVERAGE LEVEL ATTAINED IN GRADE XII

Average Level	% Observed (N = 181)	% Theoretical* (N = 4,032)
50 - 59%	24	37
60 - 69%	59	36
70 - 79%	16	21
80% & over	1	6
Total	100	100

$$D/F=3, \chi^2=43.24, P/.001$$

*Source: Director of Research and Examinations, Manitoba Department of Education. For purposes of comparability, students who had completed other than "University Entrance" course were excluded from analysis.

The second analysis tests the null hypothesis that the average ranges at M.I.T. do not differ significantly from those expected on the assumption of normality. Using the method described by Guilford,¹ Table IV was obtained. Inspection of this table indicates that (as was the case in the previous analysis) the M.I.T. students were under-represented in the two higher average brackets. Meanwhile,

¹J.P. Guilford, Fundamental Statistics in Psychology and Education (fourth edition; New York: McGraw-Hill Book Company, 1965), pp. 243-246.

TABLE IV

OBSERVED AND THEORETICAL DISTRIBUTIONS OF STUDENTS
BY AVERAGE LEVEL ATTAINED IN GRADE TWELVE

Average Level	% Observed (N = 226)	% Theoretical* (N = 226)
50 - 59%	24	20
60 - 69%	59	54
70 - 79%	16	24
80% & over	1	2
Total	100	100
D/F=3, $\chi^2=8.72$, $P/.05$		

*Based on the assumption that the averages were "normally" distributed.

the M.I.T. students were over-represented not only in the "60 - 69 percent" but also in the "50 - 59 percent" category. Chi-square analysis reveals that the differences between the observed and expected frequencies is sufficiently large to warrant rejection of the null hypothesis at the .05 level of significance. The findings also lend further support for the proposition that the M.I.T. appears to be preferred to a greater degree by students falling into the lower average range than by students falling into the higher average ranges.

Because minimum average requirements for admission to most faculties at University are similar to those for

admission to M.I.T., it was questioned whether the findings reported above do not simply suggest a relationship between grade XII average and post-secondary training generally. In an attempt to shed some light on this question, the averages of M.I.T. students who had taken the University Entrance course were compared with the averages of a cohort of 3,006 students who had enrolled in first-year university courses in the 1966-67 term, a year later than was the case for the M.I.T. sample.

Table V presents the results of the test of the null hypothesis that the average ranges of the two samples does not differ significantly from chance expectation. Inspection of this table shows that approximately one-third of the university

TABLE V

COMPARISON OF GRADE TWELVE AVERAGE LEVELS
OF "UNIVERSITY ENTRANCE" STUDENTS WHO
ATTENDED THE M.I.T. AND THOSE
WHO ATTENDED UNIVERSITY

Average Level	% Observed (N = 181)	% Theoretical* (N = 3,006)
50 - 59%	24	20
60 - 69%	59	48
70 - 79%	16	24
80% & over	1	8
Total	100	100
$D/F=3, \chi^2=18.33, P/.001$		

*Source: Registrar, University of Manitoba

sample as compared to less than one-fifth of the M.I.T. sample fell into the "70 - 79 percent" and "80 percent & over" brackets; conversely, a greater proportion of the M.I.T. sample as compared to the university sample scored averages in the "50 - 59 percent" and "60 - 69 percent" brackets. Do these differences reflect real differences in scholastic performance between these two groups? Inasmuch as they may be assumed to be drawn from basically the same population (different years of enrolment and different size, notwithstanding), and further, inasmuch as the chi square value is significant at the $\angle .001$ level, such would appear to be the case.

In summary, on the strength of the evidence presented, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between scholastic performance, as measured by grade XII average, and the decision is accepted.

H₀I: 2.2. There is no relationship between type of course completed in high school and the decision to attend the M.I.T.

The study of the relationships between the type of course taken and the dependent variable was hampered by numerous shortcomings, two of which are discussed briefly below. First, while it is known that in the 1965-66 school term, three types of courses were being offered in Manitoba, it is not known whether they were accessible to all members of the sample. Second, the most recent data available for testing the null hypothesis of goodness of fit were enrolment

figures for June, 1966. The conclusion reached from the investigation of the bearing this variable had on entry into the M.I.T. must, therefore, be interpreted with extreme caution.

Table VI gives the percentage distribution of M.I.T. students who reported having completed one of the three curricular offerings and compares these distributions with those based on enrolment figures for Manitoba for the 1965-66 school term. One noteworthy feature in this table is that four-fifths of the M.I.T. students and slightly more than four-fifths of the 1965-66 cohort of Manitoba students had completed or had followed the "University Entrance" course;

TABLE VI

OBSERVED AND EXPECTED DISTRIBUTION OF STUDENTS
BY COURSE COMPLETED IN GRADE XII

Course Completed	% Observed (N = 234)	% Theoretical* (N = 9,976)
General	12	6
Industrial	8	9
University Entrance	80	85
Total	100	100

$$D/F=2, \chi^2=14.11, P/.001$$

*Source: Director of Examinations and Research,
Manitoba Department of Education.

another is that while the proportions of "Industrial" students were relatively the same for both the sample and the population, the "General Course" students were over-represented and the "University Entrance" students were somewhat under-represented at the M.I.T. On the basis of chi square analysis, the noted variation could occur by chance less than once in a thousand repeated observations. Hence, the null hypothesis is rejected and the alternative hypothesis, that there is a significant difference in course preference between students in the sample and students in the population, is accepted.

H₀I: 2.3. There is no relationship between scholastic performance, as measured by failure record in high school, and the decision to attend the M.I.T.

The link between one index of scholastic performance and the dependent variable has already been demonstrated. Does a similar relationship exist between another presumed index of scholastic performance, failure record in high school, and the decision to attend the M.I.T.? If so, is the effect of the variable independent of other correlates of vocational selection?

The results of the survey show that not quite one-half of the students had no failures at all, approximately another one-quarter had partial failure only; meanwhile, of the remaining students, there were equal proportions in the "repeated grade" and "repeated grade(s) and/or subject(s)," respectively.

TABLE VII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS
BY FAILURE RECORD IN HIGH SCHOOL

Failure Record	Number	Percent
No failures	104	44
Repeated subject(s)	62	26
Repeated grade	34	15
Repeated grade(s) and/or subject(s)	34	15
Total	234	100

On the basis of this direct comparison, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between failure record in high school and the decision to attend the M.I.T., is accepted. Barring comparison with appropriate parametric data, however, the observed relationship must be regarded as highly tentative only.

In view of the tenuousness of the foregoing conclusion, it was especially important to determine to what extent, if any, the relationship between failure record in high school and the decision to attend the M.I.T. was a spurious one. To this end, the following analyses of independence of association were undertaken. In the first analysis, sex, a variable which was found to be significantly related to the decision, was controlled. The most spectacular results were as follows:

as can be seen from inspection of Table VIII, somewhat less than one-half as many males as females reported "no failures"; conversely, approximately one-fifth as many females as males reported "repeated grade" and "repeated grade(s) and/or subject(s)". The test for independence warrants the conclusion that the relationship between failure record and the dependent variable may have been a spurious one, i.e., the relationship may have owed its significance to the disproportionately large number of males in attendance at the M.I.T.

TABLE VIII

ASSOCIATION BETWEEN THE SEX OF STUDENTS
AND FAILURE RECORD IN HIGH SCHOOL

Failure Record	% Males (N = 203)	% Females (N = 31)
No failure	40	74
Repeated subject(s)	27	19
Repeated grade	16	7
Repeated grade(s) and/or subject(s)	17	0
Total	100	100
$D/F=3, \chi^2=11.91, P/.001$		

In the second analysis, average attained in high school was held constant. It is evident from the inspection of the results, which are given in Table IX, that, as in the previous

analysis, the relationship between failure record in grade XII and the decision to attend the M.I.T. may have been contaminated by a third variable.

TABLE IX

ASSOCIATION BETWEEN GRADE XII AVERAGE LEVEL
AND FAILURE RECORD IN HIGH SCHOOL

Failure Record	Grade XII Average Level			
	50-59% (N=55)	60-69% (N=133)	70-79% (N=35)	80% + (N=3)
No failure	33	42	74	100
Repeated subject(s)	25	32	3	0
Repeated grade	13	15	14	0
Repeated grade(s) and/or subject(s)	29	11	9	0
Total	100	100	100	100

$$D/F=9, \chi^2=25.84, P/.01$$

H₀I: 2.4. There is no relationship between scholastic performance, as measured by failure record in post secondary education, and the decision to attend the M.I.T.

Not infrequently, students decide to abandon one post secondary course in favor of another. A survey of M.I.T. students (Table X) reveals that forty-one of them, representing approximately one-fifth of the entire cohort, had previously attended University. Why did they transfer? Was failure in University a factor? In that the proportion

of "Failures" was almost six times as great as the proportion of "No Failures," such would appear to be the case.

TABLE X

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS
BY FAILURE RECORD IN POST HIGH SCHOOL

Failure Record	Number	Percent
No failure	6	15
Failure(s)	35	85
Total	41	100

On the strength of the direct comparison, the null hypothesis is rejected and the alternative hypothesis, that failure record in post secondary education is related to the decision to attend the M.I.T., is tentatively accepted.

In an attempt to explain the above finding, contingency tables relating post high school failure record to other correlates of the decision to attend the M.I.T. were set up and tested for independence. While the analyses failed to produce statistically significant results, they did point to the possibility that several factors, such as high educational level of parents, high socioeconomic status and mediocre to low average performance in high school, might have induced the individual who had experienced failure at University to try an alternative form of post secondary education.

On the strength of the evidence presented, the gross null hypothesis, that scholastic performance is related to the dependent variable, must be rejected. On the same grounds, the null hypothesis of no relationship between one such index, scholastic average attained in high school, and the dependent variable is firmly rejected; the null hypothesis pertaining to the other indices of scholastic performance, the course completed in high school, the failure record in high school, and, where applicable, the failure record in post high school, is also rejected, but not without the reservations noted.

II. INFLUENCE OF EXOGENOUS FACTORS

Home situation. The definition of and the method for securing data required for the analysis of this variable are presented in Chapter III.

H₀II: 2. There is no relationship between home situation and the decision to attend the M.I.T.

Table XI presents the proportions of M.I.T. students with "Normal" and "Broken" home situations and compares these proportions with theoretical proportions of students from the corresponding categories. Inspection of this table shows that M.I.T. students of "Normal" home situations outnumbered those of "Broken" situations by a ratio of approximately 6:1. But when these distributions are compared with theoretical distributions, it is noted that students of "Broken" home circumstances were over-represented at the M.I.T. That the

proportions of the two sets of data differ significantly from those expected by chance is indicated by the high chi square value. Hence, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between home situation and the decision to attend the M.I.T., is accepted.

TABLE XI
OBSERVED AND THEORETICAL DISTRIBUTION OF
STUDENTS BY HOME SITUATION

Home Situation	% Observed (N=234)	% Theoretical* (N=18,238,247)
Normal	86	92
Broken	14	8
Total	100	100

$$D/F=1, \chi^2=12.89, P/.001$$

*Based on an estimate given by Ivy Christina Smith, "A Comparative Investigation of the Achievement in Reading, Languages and Arithmetic of Grade Six Children from Broken and Step-Parent Homes and That of Grade Six Children from Normal Homes," Unpublished Master of Education Thesis, University of Manitoba, Winnipeg, Manitoba, 1964. An assumption had to be made that the theoretical distribution for Manitoba would parallel that for Canada.

Both the lack of more acceptable parametric data and the inconclusive nature of the findings warrant further research into the relationship between home situation and the

decision to attend the M.I.T. In particular, investigation into the psychological aspects of the influence of this factor is recommended.

Religious affiliation. The religious affiliation of the students was derived by means of item eleven in the questionnaire. This item required the respondent to check either one of the six discrete religions listed or to check the "other" category, specifying the religion into which he was born.

H₀II: 3. There is no relationship between religious affiliation and the decision to attend the M.I.T.

Table XII shows that students of United Church affiliation were the most numerous, while students of Mennonite and Greek Orthodox affiliations, were the least numerous at the M.I.T.; those of the first-mentioned group making up nearly one-third of the sample and those of the latter two groups each making up less than five percent of the sample. Between these extremes were "affiliates" of the Roman Catholic, Anglican, and Ukrainian Catholic religions with proportions of 19 percent, 16 percent and 14 percent, respectively.

The question whether chance was significantly responsible for the observed variation was resolved by means of comparison of the obtained proportions with theoretical proportions, the latter having been derived from 1961 Census data for Manitoba. Close inspection of Table XII reveals

TABLE XII
OBSERVED AND THEORETICAL DISTRIBUTION OF
STUDENTS BY RELIGIOUS AFFILIATION

Religious Affiliation	% Observed (N=234)	% Theoretical* (N=921,686)
Anglican	16	14
Ukrainian Catholic	14	6
Greek Orthodox	4	3
Mennonite	3	6
United Church	29	29
Roman Catholic	19	23
Other**	14	19
Total	100	100
$D/F=6, \chi^2=31.59, P/.001$		

*Source: Census of Canada, 1961, Bulletin 92-456, Table 44, Population by religious denominations for Manitoba, 1961.

**Included in this category were students of the smaller Christian denominations along with representatives from Buddhist, Jewish and Hindu faiths.

that of the groups in the sample, only the United Church proportions paralleled the proportions of the population. On the other hand, the Anglicans and Ukrainian Catholics were over-represented at the M.I.T.; whereas, the Roman Catholics were under-represented. Chi square analysis indicates that

the variations noted could not, statistically speaking, be attributed to chance. Hence, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between religious affiliation and the decision to attend the M.I.T., is accepted.

Porter's suggestion of possible confounding of the religious influence by various other socioeconomic and cultural forces gave rise to the question whether the religious influence found in the present study was not a spurious one.² To resolve this question, tests of independence between religious affiliation and each of the following correlates were undertaken: sex, socioeconomic level, occupational class of the father, educational level of the father and ethnic origin of the father. Only three of these analyses yielded significant results.

From inspection of Table XIII it is seen that students of each of the two Protestant religions were associated with "White Collar" occupational class in approximately twice as many instances as with "Blue Collar" occupational classes, conversely, students of each of the two Catholic religions were associated with "Blue Collar" occupational classes in approximately twice as many instances as with "White Collar" occupational classes. On the basis of the chi square test, it is concluded that the four largest

²John Porter, The Vertical Mosaic (Toronto: University of Toronto Press, 1966), pp. 98-103.

religious groups at the M.I.T. were significantly associated with occupational class.

TABLE XIII
ASSOCIATION BETWEEN OCCUPATIONAL CLASS
AND FOUR SELECTED RELIGIOUS GROUPS

Religious Affiliation	Occupational Class	
	% White (N=88)	% Blue (N=88)
Anglican	26	15
United Church	45	27
Roman Catholic	18	33
Ukrainian Catholic	11	25
Total	100	100
D/F=3, $\chi^2=16.31$, $P<.001$		

Close inspection of the following 4 x 2 table (Table XIV) indicates that the students of each of the two Protestant groups were more closely associated with "High" educational achievement of father, whereas those of each of the Catholic groups were negatively associated with "High" educational achievement of the father and positively with "Low" educational achievement of the father. On the basis of the statistical analysis, these associations are significant, providing warrant for rejecting the null hypothesis of no association

between the religion and the two educational levels of the fathers of M.I.T. students.

TABLE XIV

ASSOCIATION BETWEEN EDUCATIONAL LEVEL OF FATHER
AND FOUR SELECTED RELIGIOUS GROUPS

Religious Affiliation	Educational Level* of Father	
	% High (N=54)	% Low (N=128)
Anglican	31	16
United Church	43	35
Roman Catholic	24	25
Ukrainian Catholic	2	24
Total	100	100
D/F=3, $\chi^2=17.12$, $P<.001$		

*"High" indicates completed high school;
"Low" indicates did not complete high school.

The results of the analysis for the association between religious affiliation and ethnic origin of the father are presented in Table XV. Scrutiny of this table shows that, except for the Roman Catholic group which was largely heterogeneous with respect to ethnic composition, the other three religious groups were, for the most part, linked with particular ethnic origin. Specifically, the Anglican and United Church members were predominantly British, while the Ukrainian

Catholics, as the name implies, were almost exclusively of Ukrainian origin. That these associations are significant is indicated by the high chi square value.

TABLE XV

ASSOCIATION BETWEEN ETHNIC ORIGIN OF FATHER
AND FOUR SELECTED RELIGIOUS GROUPS

Religious Affiliation	Ethnic Origin of Father						
	Brit. (N=94)	Fr. (N=10)	Ger. (N=19)	Pol. (N=15)	Rus. (N=10)	Ukr. (N=10)	Other (N=41)
Anglican	26	0	11	0	20	33	22
United Church	55	0	31	20	0	3	15
Roman Catholic	9	80	31	47	0	11	27
Ukrainian Catholic	0	0	0	13	0	60	7
Other	10	20	27	20	80	23	29
Total*	100	100	100	100	100	100	100

Note: The salient features presented in this table were abstracted from Table LXXVI in the appendix. The chi square value of the table in the appendix was significant at $P/.001$.

*"Total" includes percentage of the four selected groups plus the percentage of the other religious groups not specified in this table.

The chi square test for goodness of fit suggests that religious affiliation is related to students' decisions to attend the M.I.T. Meanwhile, the tests for independence of

association suggest that other factors in students' backgrounds, namely, occupational class, ethnic origin and educational level of the father probably affected the strength of this relationship. Firmer conclusions on the exact nature of this factor's influence upon the decision to attend the M.I.T. must await further research; this research must reckon with, among other problems, the problem of a more precise definition of the term, "religious affiliation."

Ethnic origin of parents. In accordance with an expedient adopted in the 1961 Dominion Bureau of Statistics Census,³ the ethnic origin of the parents was determined by asking the question: What is the country of origin from which your father/mother or his/her male ancestor came to North America?

H₀ II: 4.1. There is no relationship between the ethnic origin of the father and the decision to attend the M.I.T.

From reference to Table XVI it can be seen that M.I.T. students came from a wide variety of ethnic backgrounds. Approximately two-fifths were of British origin; one-fifth of Ukrainian origin; another one-fifth of German, Polish, French and Russian origin combined; and the remaining one-fifth were of a variety of "Other" origins, the most numerous of which was the Icelandic group with 1.3 percent of the total sample.

³See Census of Canada, 1961, Bulletin 99-516, pp. 1-3.

TABLE XVI
OBSERVED AND THEORETICAL DISTRIBUTION
BY ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	% Observed (N=234)	% Theoretical* (N=468,503)
British	40	43
French	4	9
German	8	10
Polish	6	5
Russian	4	1
Ukrainian	19	11
Other	11	21
Total	100	100
D/F=6, $\chi^2=53.70$, $P \leq .001$		

*Source: 1961 Census of Canada, Bulletin 99-516, Table 4, Manitoba.

Further inspection of Table XVI indicates that the observed proportions differ from theoretical proportions as follows: students whose fathers were of French, British or German origin were under-represented at the M.I.T., while those whose fathers were of Ukrainian, Russian or Polish origin were over-represented at the M.I.T. In view of the high chi square value (53.70), it is very unlikely ($P \leq .001$) that these variations could be attributed to chance. Hence, the null hypothesis is rejected and the alternative hypothesis

that there is a relationship between the ethnic origin of the father and the decision is accepted.

To determine to what extent various socioeconomic and cultural factors commonly associated with ethnicity may have affected the relationship between ethnic origin of the father and the decision to attend the M.I.T., further analyses were undertaken.

Table XVII presents the association between occupational class and the ethnic origin of the father. Inspection of this table shows that members of the three "Western" European ethnic

TABLE XVII

ASSOCIATION BETWEEN OCCUPATIONAL CLASS
AND ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	Occupational Class	
	% White (N=93)	% Blue (N=90)
Western:	73	55
British		
French		
German		
Eastern:	27	45
Polish		
Russian		
Ukrainian		
Total	100	100
D/F=1, $\chi^2=11.69$, P/.001		

groups were associated to a greater extent with "White Collar" than with "Blue Collar" occupational background; whereas, the members of the Eastern European groups, the group which was over-represented at the M.I.T., were associated with "Blue Collar" occupational class in approximately twice as great a proportion as with "White Collar" class.

As shown in Table XVIII, cross-tabulation of ethnic

TABLE XVIII

ASSOCIATION BETWEEN SOCIOECONOMIC LEVEL
AND ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	Socioeconomic Level	
	% High (N=149)	% Low (N=42)
Western: British French German	71	40
Eastern: Polish Russian Ukrainian	29	60
Total	100	100
D/F=1, $\chi^2=11.51$, P/.001		

origin of the father with another index of social status, socioeconomic level, produced essentially similar results. There was a tendency for members of the "Western" European

ethnic groups to be more closely associated with "High" than with "Low" socioeconomic levels; and conversely, there was a tendency for members of the "Eastern" European group to be more closely associated with "Low" than with "High" socioeconomic levels. On the basis of chi square tests of independence of association, the results presented in the two foregoing analyses are highly significant.

Ethnic origin of the father was also associated with the educational level and the community of residence of the father. Inspection of Table XIX reveals that the "Western"

TABLE XIX

ASSOCIATION BETWEEN EDUCATIONAL LEVEL OF
FATHER AND ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	Educational Level of Father	
	% Completed High School (N=56)	% Did Not Complete High School (N=136)
Western: British French German	84	57
Eastern: Polish Russian Ukrainian	16	43
Total	100	100
D/F=1, $\chi^2=13.03$, P/.001		

ethnic grouping was associated with "Completed High School" as compared to "Did Not Complete High School" by a ratio of approximately 1.5:1; conversely, the "Eastern" grouping was associated with the same levels by a ratio of approximately 1:2.5.

Meanwhile, inspection of Table XX shows that "Western" background was more closely associated with "Urban" than with "Rural" residence; whereas, "Eastern" background was more closely associated with "Rural" than with "Urban" residence.

TABLE XX

ASSOCIATION BETWEEN COMMUNITY OF RESIDENCE
AND ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	Community of Residence	
	% Urban (N=160)	% Rural (N=33)
Western: British French German	66	45
Eastern: Polish Russian Ukrainian	34	55
Total	100	100
D/F=1, $\chi^2=4.84$, P/.05		

The results presented in the four preceding tables point to the conclusion that sociological factors closely linked with the two major ethnic groupings are perhaps more important than is ethnicity per se in explaining the under- and over-representation at the M.I.T. But, because of the fact that the results of cross-tabulations in which the dependent variable and each of the specified independent variables were organized into specific categories failed to reach the .05 level of significance, the above conclusion must be regarded as tentative only.

H₀II: 4.2. There is no relationship between the ethnic origin of the mother and the decision to attend the M.I.T.

It has already been suggested that value orientations and cultural traditions peculiar to different ethnic groups may account in part at least for differences in vocational preference.⁴ May it not be assumed that the vocationally relevant values can be transmitted not only by the father, but also by the mother? Owing to an increasingly common situation whereby the father is absent from the home for a large portion of the time, may it not be reasonable to expect the mother to be even more instrumental in this function than the father?⁵ The analyses which follow shed some light on these questions.

⁴Supra, pp. 15-17.

⁵Harold L. Hodgkinson, Education in Social and Cultural Perspectives (Englewood-Cliffs, New Jersey: Prentice-Hall Inc., 1962), pp. 53-58.

Column (1) of Table XXI presents the percentage distribution of students at the M.I.T. according to the ethnic origin of their mothers. From inspection of this part of the table, it is readily evident that the British and Ukrainian groups had the largest proportions in attendance, the former having two-fifths, the latter one-fifth of the entire sample. Meanwhile, the French, German, Polish and Russian groups each had proportions of approximately one-twentieth of the sample. On the basis of direct comparison, the null hypothesis is rejected and the alternative hypothesis, that ethnic origin of the mother is related to the decision to attend the M.I.T., is accepted.

TABLE XXI

PERCENTAGE DISTRIBUTION OF STUDENTS BY ETHNIC
ORIGIN OF (1) MOTHER, (2) FATHER

Ethnic Origin	% Mothers (1) (N=234)	% Fathers (2) (N=234)
British	40	40
French	4	4
German	7	8
Polish	7	7
Russian	4	4
Ukrainian	19	19
Other	19	18
Total	100	100

It is noted from close inspection of Table XXI that the distributions of students according to the ethnic origins of the mother differ but very slightly from the distributions of students according to the ethnic origin of the father. This striking correspondence gives rise to the question whether the influence of the ethnic origin of the mother may not simply be the one and same thing as the influence of the ethnic origin of the father. A partial answer to this question is provided below.

Table XXII gives the association between ethnic origin of the mothers and fathers of M.I.T. students. Inspection of the table shows that with one exception, the proportions of mothers who had married males having the same ethnic origin as their own are greater than the proportions of mothers who married males of different origins. The high chi square value indicates that these associations are significant.

In view of this homogeneity in origin, it was expected that the cross-tabulations between ethnic background of the mother and the selected control variables would yield essentially similar results to those yielded in cross-tabulations of ethnic background of the father and the same control variables. Close inspection of Table XXIII reveals that such, essentially, was the case.

In summary, the evidence presented suggests rather strongly that ethnic background of the parents is related--albeit not necessarily independently of other correlates of

the decision, namely, occupational class, socioeconomic level, educational level and community of residence--to students' decisions to attend the M.I.T.

TABLE XXII

ASSOCIATION BETWEEN ETHNIC ORIGIN OF
FATHER AND ETHNIC ORIGIN OF MOTHER

Ethnic Origin of Mother	Ethnic Origin of Father						
	Brit. (N=94)	Fr. (N=10)	Ger. (N=19)	Pol. (N=15)	Rus. (N=10)	Ukr. (N=45)	Other (N=41)
British	75	50	(26)				(29)
French		(33)					
German			47				
Polish				53		(7)	
Russian					50		
Ukrainian				(20)	(20)	78	
Other	(19)						51
Total	100	100	100	100	100	100	100

$$D/F=36, \chi^2=334.84, P<.001$$

Note: For purposes of clarity, only the two largest proportions are given in the table. The number in parentheses represents the lower of the two proportions.

TABLE XXIII

SUMMARY OF STATISTICAL ASSOCIATIONS BETWEEN ETHNIC
ORIGIN OF (1) FATHER, (2) MOTHER AND SELECTED
CORRELATES OF THE DECISION

	Ethnic Origin			
	Father (1)		Mother (2)	
	χ^2	P	χ^2	P
Occupational Class	11.69	$\angle .001$	5.36	$\angle .05$
Socioeconomic Level	11.51	$\angle .001$	5.71	$\angle .02$
Community of Residence	4.84	$\angle .05$	1.89	N.S.
Educational Level of Father	13.03	$\angle .001$	-	-
Educational Level of Mother	-	-	26.77	$\angle .001$

Citizenship status. The operational definition of this variable is given on page 3.

H_{II}: 5. There is no relationship between citizenship status and the decision to attend the M.I.T.

The survey reveals that nearly one-third of the M.I.T. students had "fourth generation", somewhat less than one-half had "third generation", approximately one-fifth had "second generation" and a relatively small portion (3 percent) had "first generation" status. Closer inspection reveals that

nearly four-fifths of the students had at least "third generation" status, while approximately one-fifth had at least "second generation" status. On the basis of this direct comparison, the null hypothesis is rejected and the alternative hypothesis, that citizenship status is related to students' decisions to attend the M.I.T., is tentatively accepted.

TABLE XXIV
FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS
BY CITIZENSHIP STATUS OF PARENTS

Citizenship Status	Number	Percent
Fourth	72	32
Third	104	47
Second	41	18
First	7	3
Total	234	100

The question whether the obtained relationship between citizenship status and the decision to attend the M.I.T. is real or whether it is a mask of other forces germane to this decision is discussed briefly below. On the strength of previous research by both Porter and Kaill, it was hypothesized that the influence ascribed to citizenship status may owe much of its efficacy to its association with such related factors as ethnic origin, educational level and socioeconomic level

of parents.⁶

The expected association between citizenship status and ethnicity is borne out in Tables XXV and XXVI. Inspection reveals that "more than two generation status" is more closely associated with British, French and German groups than with the Polish, Russian and Ukrainian groups; conversely, "two or fewer" generation status is more closely associated with the Slavic than with the British, French and German group.

TABLE XXV

ASSOCIATION BETWEEN ETHNIC ORIGIN OF
FATHER AND CITIZENSHIP STATUS

Citizenship Status	Ethnic Origin of Father	
	% Western (N=117)	% Eastern (N=69)
Third & Fourth	89	67
First & Second	11	33
Total	100	100
D/F=1, $\chi^2=10.12$, P/.01		

⁶John Porter, op. cit., p. 100; and Robert Kaill, "An Inquiry into the Relationship Between the Occupational Level of Parents, Their Attitude Toward Education and the Educational Achievement of the Child," Guelph, Ontario: Master of Science Thesis, 1963, p. 20.

TABLE XXVI

ASSOCIATION BETWEEN ETHNIC ORIGIN OF
MOTHER AND CITIZENSHIP STATUS

Citizenship Status	Ethnic Origin of Mother	
	% Western (N=115)	% Eastern (N=68)
Third & Fourth	88	71
First & Second	12	29
Total	100	100

$$D/F=1, \chi^2=7.29, P/.01$$

As evidenced from inspection of Table XXVII, the association between citizenship status and socioeconomic level of M.I.T. students generally parallels the association between citizenship status and ethnic origin of fathers of M.I.T. students. In the light of this correspondence in results, as well as in the light of statistically significant association between socioeconomic status and ethnic origin of the father, the following observation is tentatively offered: if the relationship between citizenship status and the decision to attend the M.I.T. is a significant one, it is considerably affected by the manner in which it is associated with groups who because of cultural or socioeconomic considerations tend to elect technical training as their form of post secondary education. A more exact description of the nature of the

influence of citizenship status must await, among other things, suitable parametric data to measure representativeness and a larger sample to permit simultaneous cross-tabulations.

TABLE XXVII
ASSOCIATION BETWEEN SOCIOECONOMIC
LEVEL AND CITIZENSHIP STATUS

Citizenship Status	Socioeconomic Level	
	% High (N=152)	% Low (N=50)
Third & Fourth	79	66
First & Second	21	34
Total	100	100
D/F=1, $\chi^2=5.36$, $P<.05$		

Social status. There is some disagreement as to the precise nature and dimensions of this variable's influence upon vocational decisions; much of this disagreement apparently arising, from the lack of a fully acceptable single method of isolating and measuring this variable.⁷ For the purposes of this study, two commonly employed indices of this variable were used. The first, occupational class of the father, measures

⁷David Gottlieb and Charles E. Ramsey, The American Adolescent (Homewood, Ill.: The Dorsey Press, Inc., 1964), citing Milton M. Gordon, Social Class (Durham, N.C.: Duke University Press, 1958), p. 158.

social status in terms of schooling and income; the second, socioeconomic level, measures the same variable in terms of selected material and cultural possessions of the family.

H₀II: 6.1. There is no relationship between social status, as measured by the occupational class of the father, and the decision to attend the M.I.T.

Inspection of Table XXVIII shows that slightly more than one-half of the students had fathers of "White Collar" origin (Classes I, II, III, and IV; or Managerial, Professional and Technical, Clerical and Sales, respectively). The remaining portion had fathers of "Blue Collar" origins (Classes V, VI and VII; or Skilled Craftsmen and Farmers, Semi-Skilled Craftsmen and Service, and Laborers, respectively). It can also be seen that fathers of Class I were the least numerous (2 percent), while fathers of Class V were the most numerous single group (29 percent).

Data presented in the left-hand column was then compared with data abstracted from appropriate sections of Census of Canada, 1961. The purpose of this comparison was to test the null hypothesis that the M.I.T. distributions differ significantly from the theoretical distributions. From inspection it is apparent that there is considerable variation between the proportions of the observed and the "population" distribution. It is particularly noteworthy that, on the whole, students of "White Collar" backgrounds were over-represented, while those of "Blue Collar" backgrounds were

TABLE XXVIII

OBSERVED AND THEORETICAL DISTRIBUTION
OF STUDENTS BY OCCUPATIONAL CLASS

Occupational Class	% Observed (N=226)	% Theoretical* (N=246,198)
White Collar		
Class I	2	6
Class II	18	9
Class III	16	7
Class IV	15	5
Blue Collar		
Class V	29	45
Class VI	13	10
Class VII	7	18
Total	100	100

$$D/F=6, \chi^2=98.90, P/.001$$

*Source: Census of Canada, 1961, Bulletin 94-515, Table 22, Labour Force Occupations..... for Manitoba.

under-represented at the M.I.T. On the basis of the chi square test for goodness of fit, it must be concluded that the variations noted are unlikely to have occurred by chance. Hence, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between social status, as measured by the occupational class of the father,

and the dependent variable is accepted.

H₀ II: 6.2. There is no relationship between social status, as measured by socioeconomic level, and the decision to attend the M.I.T.

Inspection of the left-hand column of Table XXIX reveals that nearly four-fifths of the students were distributed,

TABLE XXIX
OBSERVED AND THEORETICAL DISTRIBUTION
OF STUDENTS BY SOCIOECONOMIC LEVEL

Socioeconomic Level	% Observed (N=232)	% Theoretical* (N=246,198)
High		
Level I	13	-
Level II	34	3
Level III	31	9
Low		
Level IV	12	16
Level V	6	51
Level VI	4	21
Total	100	100

$$D/F=5, \chi^2=383.61, P/.001$$

*Source: Adapted from the Census of Canada, 1961, Bulletin 94-515, Table 22, p. 25. (It is believed that while the parameter used here may not be satisfactory, it is probably a better basis than is the hypothesis of equal probability, for arriving at theoretical frequencies.)

though not linearly in the three "High" levels; whereas, the remaining one-fifth were distributed in decreasing proportions in the three "Low" socioeconomic levels. When these distributions are compared with expected distributions, it is found that students of "High" socioeconomic levels were considerably over-represented, while students of "Low" socioeconomic levels were considerably under-represented at the M.I.T. The unusually high chi square value practically rules out the probability that the observed variations can be attributed to chance. Hence, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between social status, as measured by socioeconomic level, and the decision, is accepted.

Reference to Chapter II of the present study reveals that the observed relationships between the two measures of social status and the decision to attend the M.I.T. may derive from the association of these measures with other correlates of vocational selection; in particular, educational level and community of residence.⁸ By means of a series of cross-tabulations, this possibility is investigated below.

The occupational level of the father is frequently found to be related to the father's level of educational achievement. That such was the case for the fathers of students in the present study, is clearly evidenced by the

⁸Supra, pp. 42-43.

results in Table XXX. It is seen that "White Collar" status was associated with "High School or Better" as compared to "Less than High School" achievement by a ratio of almost exactly 2:1; whereas "Blue Collar" status was related to "High School or Better" educational achievement as compared to "Less than High School" by a ratio of approximately 1:3.

TABLE XXX

ASSOCIATION BETWEEN EDUCATIONAL LEVEL
OF FATHER AND OCCUPATIONAL CLASS

Occupational Class	Educational Level of Father	
	% High School or Better (N=63)	% Less than High School (N=162)
White Collar	79	40
Blue Collar	21	60
Total	100	100
D/F=1, $\chi^2=28.27$, P/.,001		

The expected association between occupational class and community of residence is, likewise, upheld. Reference to Table XXXI reveals that "White Collar" origin was associated with "Urban" as compared to "Rural" residence by a ratio of slightly greater than 2:1; conversely, "Blue Collar" origin was associated with the corresponding residence

categories by a ratio of approximately 1:1.5.

TABLE XXXI
ASSOCIATION BETWEEN COMMUNITY OF
RESIDENCE AND OCCUPATIONAL CLASS

Occupational Class	Community of Residence	
	% Urban (N=184)	% Rural (N=42)
White Collar	57	26
Blue Collar	43	74
Total	100	100
$D/F=1, \chi^2=12.70, P/.001$		

Socioeconomic level may derive its efficacy as a determinant of vocational choice from its association with aspects of family culture. The hypotheses that such conditioners of vocational values as ethnicity and religious affiliation help to specify the relationship between socioeconomic level and the decision to attend the M.I.T. are tested below.

Inspection of Table XXXII reveals that "High" socioeconomic level was more closely associated with membership in the "Western" ethnic groups than it is with membership in the "Eastern" ethnic groups; whereas "Low" socioeconomic status was more closely associated with membership in the "Eastern"

as compared to membership in the "Western" ethnic groups.

TABLE XXXII

ASSOCIATION BETWEEN ETHNIC ORIGIN OF
FATHER AND SOCIOECONOMIC LEVEL

Socioeconomic Level	Ethnic Origin of Father	
	% Western (N=123)	% Eastern (N=68)
High	86	63
Low	14	37
Total	100	100
D/F=1, $\chi^2=11.51$, P/.001		

When religious affiliation, another aspect of family culture, was related to the socioeconomic correlate, the following result was obtained. Students of "High" socioeconomic level evince a slightly greater tendency to come from Protestant (82 percent) as opposed to Catholic homes (75 percent). The low chi square value, however, indicates that the association between the two correlates may be a function of chance.

It would appear from the foregoing cross-tabulations, that while both occupational class and socioeconomic level may be regarded as powerful determinants of the decision to attend the M.I.T., some of this "power" derives from the manner in which these variables are associated with other correlates of vocational choice.

Educational level of the parents. The data for investigating the relationship between the educational level of the father and mother and the dependent variable were obtained by means of items eight and nine, respectively.

H₀II: 7.1. There is no relationship between the educational level of the father and students' decisions to attend the M.I.T.

From the inspection of Table XXXIII, it is seen that approximately two-fifths of the fathers had grade eight education or less. Of the remaining portion (58 percent), approximately equal proportions had "Some High School" or "High School or Better" levels of achievement.

On comparing the distribution of the educational levels of the fathers of M.I.T. students with theoretical frequencies, it is seen that the M.I.T. sample was over-represented in the "Some Post High School" and "University Graduation" categories, but under-represented in the "Less than Grade V", "Grades V to VIII" and "High School"⁹ categories. On the basis of chi square analysis, the distributions noted differ very significantly from those expected on the assumption of goodness of fit. Hence, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between the educational level of the father and the dependent variable, is accepted.

⁹This category consists of 29 percent who had taken some high school and 13 percent who had graduated from high school.

TABLE XXXIII

OBSERVED AND THEORETICAL DISTRIBUTION OF
STUDENTS BY EDUCATIONAL LEVEL OF FATHER

Educational Level of Father	% Observed (N=233)	% Theoretical* (N=299,505)
Elementary		
Less than Grade V	9	13
Grade V to VIII	33	36
High School		
Some High School	29	45
High School Graduation	13	
Post High School		
Some Post High School	10	3
University Graduation	6	3
Total	100	100

$$D/F=4, \chi^2=45.78, P/.001$$

*Source: Census of Canada, 1961, Bulletin 92-550, Volume I, Part II, Table 74. Manitoba males five years of age and over not attending school by highest grade attended.

To test the tenability of the explanations for the findings in the present study, the following correlates were related, (as "independent" variables) to the educational level of the fathers of M.I.T. students: community of

residence, occupational class, socioeconomic level, ethnic origin. The results of these analyses are presented in the following contingency tables.

Data in Table XXXIV substantiates at the .01 level of significance the hypothesis of association of educational level of the father and community of residence of M.I.T. students. This can be inferred from the fact that "High School or Better" achievement was associated with "Urban", as compared to "Rural" residence, by a ratio of approximately 5:1; whereas, the proportion of fathers of "Less than High School" standing was more closely associated with "Rural" as opposed to "Urban" residence by a ratio of approximately 1.3:1.

TABLE XXXIV

ASSOCIATION BETWEEN COMMUNITY OF RESIDENCE
AND EDUCATIONAL LEVEL OF FATHER

Educational Level of Father	Community of Residence	
	% Urban (N=191)	% Rural (N=42)
High School or Better	34	7
Less than High School	66	93
Total	100	100
D/F=1, $\chi^2=10.46$, P/.01		

Inspection of Tables XXXV and XXXVI shows that the educational level of the father was even more closely associated with social status variables than it was with

TABLE XXXV

ASSOCIATION BETWEEN OCCUPATIONAL CLASS
AND EDUCATIONAL LEVEL OF FATHER

Educational Level of Father	Occupational Class	
	% White (N=110)	% Blue (N=115)
High School or Better	44	12
Less than High School	56	88
Total	100	100

$$D/F=1, \chi^2=28.46, P/.001$$

TABLE XXXVI

ASSOCIATION BETWEEN SOCIOECONOMIC LEVEL
AND EDUCATIONAL LEVEL OF FATHER

Educational Level of Father	Socioeconomic Level	
	% High (N=179)	% Low (N=52)
High School or Better	36	8
Less than High School	64	92
Total	100	100

$$D/F=1, \chi^2=15.27, P/.001$$

community of residence. This is not surprising in view of the fact that entry into the higher occupational and socioeconomic strata is to a large extent contingent upon high educational achievement, regardless of whether one resides in a large or small, an urban or a rural community.

It is evident from inspection of Table XXXVII that educational level of the father was, likewise, significantly associated with the ethnic background of the father. This is shown by the fact that "High School or Better" achievement was more closely associated with fathers of "Western" than it is with fathers of "Eastern" ethnic background; whereas, the obverse relationship exists for the "Less than High School" achievement level.

TABLE XXXVII

ASSOCIATION BETWEEN ETHNIC ORIGIN OF FATHER
AND EDUCATIONAL LEVEL OF FATHER

Educational Level of Father	Ethnic Origin of Father	
	% Western (N=119)	% Eastern (N=69)
High School or Better	39	13
Less than High School	61	87
Total	100	100
$D/F=1, \chi^2=13.37, P/.001$		

When the educational level of the fathers of M.I.T. students and each of the independent variables were more finely categorized, all but one of the analyses (that relating the dependent variable to occupational class) failed to yield "significant" chi square values. In view of this discrepancy, no firm conclusions concerning the disposition, whether dependent or independent, of the educational level of the father can be made. Nevertheless, it would appear, more than likely, that while other correlates, in particular, the occupational class of the father help to "explain" the dimensions of its influence, the educational level of the father has considerable predictive value in its own right.

H₀II: 7.2. There is no relationship between the educational level of the mother and students' decisions to attend the M.I.T.

From the inspection of Table XXXVIII, it is seen that two-thirds of the mothers had less than "High School Graduation"; approximately one-fifth had completed high school while approximately one-tenth had some post-secondary education.

On comparing the distributions of the educational achievement levels of the mothers of M.I.T. students with theoretical distributions, it is immediately evident that the M.I.T. sample was under-represented in the "Less than Grade V" and "Grades V to VIII" categories, but over-represented in the high school and the two post secondary educational categories.

TABLE XXXVIII

OBSERVED AND THEORETICAL DISTRIBUTION OF
STUDENTS BY EDUCATIONAL LEVEL OF MOTHER

Educational Level of Mother	% Observed (N=233)	% Theoretical* (N=296,062)
Elementary		
Less than Grade V	6	14
Grades V to VIII	25	28
High School		
Some High School	36	53
High School Graduation	22	
Post High School		
Some Post High School	8	3
University Graduation	3	2
Total	100	100

$$D/F=4, \chi^2=44.53, P/.001$$

*Source: Census of Canada, 1961, Bulletin 92-550, Volume I, Part II, Table 74. Manitoba females five years of age and over not attending school by highest grade attended.

The chi square test for goodness of fit indicates that the differences noted in the table are very unlikely to have been functions of chance. Hence, the null hypothesis is rejected and the alternative hypothesis, that there is no relationship

between educational level of the mother and the dependent variable, is accepted.

To determine whether the influence of the educational level of the mother was an independent one, further analyses were undertaken. The first analysis (Table XXXIX) related the educational level of the mother with that of the father. It

TABLE XXXIX

ASSOCIATION BETWEEN EDUCATIONAL LEVEL OF
FATHER AND EDUCATIONAL LEVEL OF MOTHER

Educational Level of Mother	Educational Level of Father	
	% High School or Better (N=165)	% Less than High School (N=68)
High School or Better	62	22
Less than High School	38	78
Total	100	100
$D/F=1, \chi^2=28.88, P<.001$		

was found that mothers having "High School or Better" achievement were associated with fathers of the same level of achievement as compared to fathers with "Less than High School" by a ratio of approximately 3:1; conversely, mothers of "Less than High School" achievement were associated with fathers having "High School or Better" education as compared

to fathers having "Less than High School" by a ratio of 1:2. On the basis of the chi square test of independence, it is concluded that the noted associations were unlikely to have been functions of chance. The same conclusion, that the educational level of the mother is not independent of the educational level of the father, is reached when the two variables are more finely categorized.¹⁰

On the strength of the association between parents' educational achievement levels as well as on the strength of the homogeneity in ethnic origin, it was hypothesized that the variables which helped to explain the relationship between the educational level of the father and the dependent level would, likewise, help to explain the relationship between the educational level of the mother and the dependent variable. From inspection of the statistical results of the analyses undertaken to test the tenability of this hypothesis, such appears to have been the case. Table XL shows that while the results of the two groups of analyses differ somewhat in particulars, they are essentially the same in tendencies: both the educational level of the mother and of the father are significantly associated with community of residence, occupational class, socioeconomic level and ethnic background.

In summary, on the basis of the chi square tests of goodness of fit, it is concluded that both the distributions

¹⁰Infra, Table LXXIV, p. 176.

TABLE LX

SUMMARY OF STATISTICAL ASSOCIATIONS BETWEEN
EDUCATIONAL LEVELS OF (1) FATHER (2) MOTHER
AND SELECTED CORRELATES OF THE DECISION

Selected Correlates	Educational Level			
	Father (1)		Mother (2)	
	χ^2	P	χ^2	P
Community of Residence	10.46	$\angle .01$	5.61	$\angle .02$
Occupational Class of Father	28.46	$\angle .001$	9.78	$\angle .01$
Socioeconomic Level	15.27	$\angle .001$	7.20	$\angle .01$
Ethnic Origin of Father	13.03	$\angle .001$	26.77	$\angle .001$

of the educational levels of the father as well as those of the mother differ significantly from those expected on the assumption of representativeness. Further, on the strength of the chi square analyses of independence of association, it is concluded that the precise nature of the relationships between the educational levels of the parents and attendance at the M.I.T. may be explained in terms of the manner in which these variables are associated with other correlates of the decision.

Reaction of the parents. Data needed for the investigation of the relationship between this variable and the decision to attend the M.I.T. were secured as follows: In instances where

the student indicated that his parent(s) "Agreed" that his going to M.I.T. was "an excellent decision" and/or a "good decision"; and/or if the student also indicated that his parent(s) "Disagreed" with the suggestion(s) that the student "should reconsider the decision" and/or that the decision "was very unwise," the parental reaction was designated as "Approval." On the other hand, in instances where "Agree" and "Disagree" responses were reversed, the parental reaction was designated as "Disapproval." In instances where the student marked only the third response, "It was really up to me to decide," or in instances where the responses were marked in such a way that they cancelled each other out, the parental reaction was designated as "Indifference."

H₀II: 8. There is no relationship between the reactions of parents and the decision to attend the M.I.T.

The results of the survey conducted to test the null hypothesis are given in Table XLI. Inspection shows that the distributions of fathers' and mothers' reactions are practically similar: in each case, the proportion of those who approved of the decision was approximately three times as great as the proportions of those who were indifferent to or disapproved of the decision. On the basis of this direct comparison, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between the reaction of parents and the decision to attend the M.I.T., is tentatively accepted.

TABLE XLI

REACTION OF (1) FATHER, (2) MOTHER TO STUDENTS
DECISION TO ATTEND THE M.I.T.

	Reaction of Father (1)		Reaction of Mother (2)	
	Number	Percent	Number	Percent
Approval	170	(73)	172	(74)
Indifference	56	(24)	54	(22)
Disapproval	8	(3)	10	(4)
Total	234	100	234	100

On the strength of related literature, it was hypothesized that the obtained relationships could be explained in terms of such other correlates of the decision as educational level, social class, ethnic origin, religious affiliation and community of residence. The results of the analyses undertaken to test these hypotheses indicate that only one of the specified correlates was significantly associated with parental reactions. As evidenced in Table XLII, mothers' reactions to the decision were functions of the type of community in which they resided; that is, mothers who resided in "Urban" communities evinced a greater tendency, than did their "Rural" counterparts, to approve of their children's decisions to attend the M.I.T.

The close alignment between the distribution of parental reactions suggests that the influence of one parent was not

TABLE XLII

ASSOCIATION BETWEEN COMMUNITY OF RESIDENCE
AND PERCEIVED REACTION OF MOTHER

Reaction of Mother	Community of Residence	
	% Urban (N=192)	% Rural (N=42)
Approval	75	67
Indifference or Disapproval	25	33
Total	100	100
$D/F=1, \chi^2=5.19, P/.05$		

independent of that of the other. The data in Table XLIII provides statistical substantiation for this hypothesis. Inspection reveals that the proportion of mothers who approved of the decision was nearly two and one-half times as great in instances in which the father also approved of the decision as was true of instances in which the father was indifferent about and/or disapproved of the decision. Further inspection reveals that the obverse association also held. Highly similar results were obtained when the mothers', rather than the fathers', reactions were designated as the "control" variable.

Because the reactions which were investigated above were those perceived of the students, (and may not have been accurate reflections of parents' actual attitudes) firm conclusions on

TABLE XLIII

ASSOCIATION BETWEEN PERCEIVED REACTION OF
MOTHER AND PERCEIVED REACTION OF FATHER

Reaction of Mother	Reaction of Father	
	% Approval (N=170)	% Indifference or Disapproval (N=64)
Approval	88	36
Indifference or Disapproval	12	64
Total	100	100

$$D/F=1, \chi^2=14.35, P/.001$$

the relationship between parents' reactions and the decision may not be made. Nevertheless, from the evidence presented, it appears that this variable is significantly, perhaps independently, related to students' decisions to attend the M.I.T.

Reaction of the peer group. Three different means were used to elicit information on the influence of this variable. The third method entailed the respondents' indicating by means of a check mark one of the five possible ways their boy/girl or best friend may have felt about their decision to attend the M.I.T. The responses were scaled as follows: "Agreed a lot" and "Agreed a little" were regarded as evidence of approval, "Disagreed a little" and "Disagreed a lot" were taken to

represent disapproval, while "Indifference" meant neither approval nor disapproval. The second method required the respondents to indicate by means of a check mark whether most of their friends were continuing their education and/or were engaged in some kind of work. These data were then scaled as follows: respondents who checked more items in the left-hand side than in the right-hand side of questionnaire were considered as having most of their friends "continuing education"; conversely, those respondents who had checked more items in the left than in the right-hand side, were considered as having most of their friends "in the labor force"; in instances where both sides were equally represented, the information was excluded from the analysis. Data obtained in the open-ended questions (see Item 19(b)) were likewise, divided into "continuing education" or "in the labor force" categories.

H₀II: 9. There is no relationship between peer influence and the decision to attend the M.I.T.

Inspection of Table XLIV shows that the proportions of students who received "Approval" of their decisions to attend the M.I.T. from their girl/boy or best friend was greater than the proportion of students who had not received such approval. Specifically, the ratio of "Approval" to "Indifference or Disapproval" for girlfriend/boyfriend and best friend was 4:1, approximately 3:1, and somewhat more than 2:1, respectively.

Somewhat less striking results were obtained when peer group influence, as measured by two kinds of subcultures with

TABLE XLIV

RELATIONSHIP BETWEEN PERCEIVED REACTION OF
(1) BOYFRIEND, (2) GIRLFRIEND, (3) BEST
FRIEND AND DECISION TO
ATTEND THE M.I.T.

Perceived Reaction	% Distribution		
	Boyfriend (N=162)	Girlfriend (N=26)	Best Friend (N=42)
Approval	80	73	69
Indifference	4	15	10
Disapproval	16	12	21
Total	100	100	100

which students tended to affiliate was related to the decision. As shown in Table XLV, the proportion of M.I.T. students who indicated that the majority of their friends were continuing education was approximately one and one-half times as large as the proportion of students who indicated that the majority of their friends were in the labor force. When peer group influence was measured in terms of the destination of "best" rather than "most" friends, the distributions paralleled very closely those reported above.

On the basis of the evidence presented, the null hypothesis is rejected and the alternative hypothesis, that there is a relationship between peer influence, whether measured be reaction of boy/girl or best friend or by kind of

subcultures the student associated with and the decision, is tentatively accepted.

TABLE XLV

FREQUENCY DISTRIBUTION OF STUDENTS BY IMMEDIATE
DESTINATION OF MAJORITY AND OF BEST FRIENDS

Immediate Destination	Best Friends		Majority of Friends	
	Number	Percent	Number	Percent
Continuing Education	145	62	131	62
Entered Labor Force	89	38	80	38
Total	234	100	211	100

To determine whether the obtained relationship was a function of other correlates of the decision, an exhaustive series of cross-tabulations was carried out. With one exception--"Best Friends" and "Most Friends' Destination" were associated at the $\angle .001$ level of probability--these analyses failed to uncover such functional associations. Do the results point to an "independent" relationship between peer influence and the decision? Future researchers may be able to resolve this question more satisfactorily through employment of sophisticated statistical procedures as well as through depth interviewing.

Reaction of teacher. Data for determining how this

variable was related to the decision to attend the M.I.T. was secured by the same means as was the data for investigating the influence of parental attitudes.

H₀II: 10. Teachers' reactions are not related to students' decisions to attend the M.I.T.

As shown in Table XLVI fewer than one-third of the teachers were positively disposed, while the remaining two-thirds were either non-committal or were negatively disposed towards the students' decisions to attend the M.I.T.

TABLE XLVI

RELATIONSHIP BETWEEN PERCEIVED REACTION OF TEACHER
AND THE DECISION TO ATTEND THE M.I.T.

Teacher Reaction	Number	Percent
Approval	67	28
Indifference	54	23
Disapproval	113	49
Total	234	100

On the basis of this direct comparison, the null hypothesis is rejected and the alternative hypothesis, that teachers' attitudes are related to students' decisions to attend the M.I.T., is tentatively accepted.

It was hypothesized partly on the basis of a priori reasoning, partly on the strength of personal observation that

the nature of teacher influence (whether positive or otherwise) upon students' decisions would be dependent upon the sex of the students and several school-related factors. Only two of these hypothesized relationships produced statistically significant results.

Inspection of Table XLVII reveals that while teacher approval was negatively associated with both sexes, this association was more pronounced in the case of the females than in the case of the males. Approximately one-fifth as many females as males claimed that their teachers had approved of their decision. On the other hand, a greater proportion of females as compared to males (1.4:1) claimed that their teachers had not approved of their decision.

TABLE XLVII

ASSOCIATION BETWEEN PERCEIVED REACTION
OF TEACHER BY SEX OF STUDENT

Teacher Reaction	Sex	
	% Male (N=203)	% Female (N=31)
Approval	32	6
Indifference or Disapproval	68	94
Total	100	100
D/F=1, $\chi^2=8.32$, P/.01		

Inspection of Table XLVIII reveals that teacher reaction was a function of the type of course the student had completed in high school. Specifically, teacher approval was associated with non-university entrance courses as compared to university entrance courses by a ratio of approximately 4.5:1; conversely, teacher indifference and/or disapproval was associated with the same categories of courses by a ratio of approximately 1:3.

TABLE XLVIII

ASSOCIATION BETWEEN PERCEIVED REACTION OF
TEACHER AND COURSE COMPLETED IN GRADE XII

Teacher Reaction	Course Completed	
	University (N=186)	Non-University (N=47)
Approval	17	74
Indifference or Disapproval	83	26
Total	100	100
D/F=1, $\chi^2=58.92$, P/.001		

Community of residence. On the basis of the literature reviewed, community of residence was conceived as a kind of crucible in which various interactive processes germane to vocational selection occur. While the analyses which follow focus on the relationship between size of community and the decision to attend the M.I.T., the effects of the type of

community, if they are interesting or pronounced, will also be noted. It is recognized, however, that in some instances, the effects may derive from both aspects of the variable.

H₀II: 11. There is no relationship between community of residence and the dependent variable.

Table XLIX presents the principal findings relative to the question whether the distribution of M.I.T. students according to community of residence differ significantly from theoretical proportions for the corresponding categories based on the latest available population figures for Manitoba.

Close inspection of the table reveals that, except for the communities having populations of 500 to 4,999 and 5,000 to 49,999, the observed and expected proportions for communities of other sizes differ as follows: students from Metropolitan Winnipeg were over-represented at the M.I.T. while those from the two smallest sizes of communities were under-represented. On the basis of chi square analysis of goodness of fit, differences of such magnitude could not, statistically speaking, be attributed to chance. Hence, the null hypothesis is rejected and the alternative hypothesis, that community of residence is related to the decision to attend the M.I.T., is accepted.

The review of literature indicates that the nature of the relationship between the community of residence and the dependent variable depends to a large measure, upon the disposition of social forces immanent in the community. The following analyses hold such socioeconomic factors constant in

TABLE XLIX
OBSERVED AND THEORETICAL DISTRIBUTION OF
STUDENTS BY COMMUNITY OF RESIDENCE

Community of Residence	% Observed (N=234)	% Theoretical* (N=963,066)
Urban		
50,000 and over	65	52
5,000 to 49,999	7	9
500 to 4,999	10	99
Rural		
499 and under	9	13
Farm	9	17
Total	100	100

$$D/F=4, \chi^2=21.18, P/.001$$

*Source: Derived from Census of Canada, 1967, Bulletin 92-606, Volume I, (1966 population for Manitoba divisions and sub-divisions).

an attempt to test the tenability of this suggestion insofar as the relationship found in the present study is concerned.

Table L presents the association between occupational class and the community of residence. From inspection, it is noted that students from "Urban" communities were associated with "White Collar" status as compared to "Blue Collar" status in the ratio of approximately 1.25:1; conversely students of "Rural" residence were associated with "Blue Collar" status,

as compared to "White Collar" in a ratio of approximately 3:1. Chi square analysis indicates that the association between occupational class and community of residence is significant at the $\angle .001$ level.

TABLE L
ASSOCIATION BETWEEN OCCUPATIONAL CLASS
AND COMMUNITY OF RESIDENCE

Community of Residence	Occupational Class	
	% White (N=115)	% Blue (N=111)
Urban		
Metro	73	57
Non-metro	17	15
Rural		
Non-farm	7	11
Farm	3	17
Total	100	100
$D/F=3, \chi^2=22.75, P\angle .001$		

From comparison of the table in which socioeconomic level is related to community of residence (Table LI) with the previous table (Table L), it is observed that the results of the two analyses differ somewhat in particulars but hardly at all in tendencies. Specifically, "Urban" residence tended

to be more closely associated with "High" as compared to "Low" socioeconomic level; whereas, "Rural" residence tended to be associated with "Low" socioeconomic level to a greater extent than it does with "High" socioeconomic level.

TABLE LI

ASSOCIATION BETWEEN SOCIOECONOMIC LEVEL
AND COMMUNITY OF RESIDENCE

Community of Residence	Socioeconomic Level	
	% High (N=180)	% Low (N=52)
Urban		
Metro	72	42
Non-metro	16	17
Rural		
Non-farm	7	16
Farm	5	25
Total	100	100
D/F=3, $\chi^2=24.23$, P/.001		

The results of the foregoing analyses, together with the results that were obtained when the two sets of relationships--the relationship between occupational class and community of residence, on the one hand, and between socioeconomic level and community of residence, on the other

hand--were organized into 5 x 7 and 5 x 6 tables,¹¹ respectively, provides strong statistical support for the following conclusion: while community of residence has a strong influence upon the decisions to attend the M.I.T., the dimensions of this influence vary considerably with the manner in which occupational class and socioeconomic level correlates immanent in the community are distributed.

¹¹See Appendix B, Tables LXXXIII and LXXXIV.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

I. OUTLINE OF THE PROBLEM AND METHODOLOGY

The Problem

On the basis of a review of literature, private discussions and personal observations, it was hypothesized that students' decisions to attend the M.I.T. in the 1965-66 school term were significantly related to selected endogenous and exogenous factors in their backgrounds. The problem of this study was to test the tenability of these hypotheses.

Methodology

To secure data required for the resolution of the problem, a questionnaire comprised of forced choice and open-ended, scalable and non-scalable items was administered to a cohort of first-year technology students in June, 1966. With the aid of a computer, the responses were counted, translated into percentages and organized into frequency distribution tables indicating the relationships between the decision to attend the M.I.T. and each of the selected background variables.

The question whether the obtained relationships were significant was resolved in one of two ways. Where parametric data for the interpretation of a particular relationship were not obtainable, direct comparison of the proportions of variates

was used as the basis for acceptance or rejection of the null hypothesis underlying that relationship. But, in instances where appropriate parametric data were available, the chi square test for goodness of fit was used as the basis for deciding the disposition of the null hypothesis.

Those relationships which could not be attributed to chance were then subjected to chi square tests of independence of association. The main purpose of these further analyses was to help to explain to what extent, if any, the influence of a particular factor was dependent upon its association with other correlates of the decision.

II. SUMMARY AND DISCUSSION OF FINDINGS

It was found that all the factors selected for investigation were related in varying degrees of significance and strength to the dependent variable. It was further found that some of the relationships were significantly associated with one or more other correlates of the decision. The most salient findings on each factor are summarized and discussed below.

Sex

The fact that there were approximately seven times as many males as females in attendance at the M.I.T. suggests that sex was a factor, though not necessarily an independent one, in the decision.

Previous research is somewhat helpful in explaining

the observed sex bias. Blanchard and her associates noted a tendency for males and females to pursue careers, and concomitantly to take courses, which afford them outlets for their respective biological proclivities.¹ Inasmuch as it can be validly assumed that Secretarial Science (indeed, cursory analysis of the course content appears to warrant such an assumption) prepares females for work requiring them to exercise such attributes as accuracy, devotion and personal attachment, Blanchard's proposition is supported in this study: viz., the course in question was chosen exclusively by girls; in fact, twenty-seven of the thirty-one girls elected this course. Perhaps, too, the observed sex bias can be attributed to direct or subtle cultural sanctions irrespective of their compatability with innate aptitudes.² On the other hand, it may be speculated that the course preferences evinced by both sexes may simply reflect a strong demand for personnel with a particular kind of business and technological proficiency.

Scholastic Performance

The null hypotheses of no relationship between the four measures of scholastic performance and the decision were

¹M. Blanchard et al, "Familial and Other Influences in Occupational Planning," (unpublished Master's Thesis, McGill University, Montreal, 1957), p. 26.

²Theodore Caplow, The Sociology of Work (Minneapolis, Minn.: The University of Minnesota Press, 1954), p. 237.

rejected; the first two, on the basis of chi square tests of goodness of fit, the remaining two on the strength of direct comparisons.

The survey showed that approximately one-quarter of the students had attained averages in the 50-59 percent range, approximately three-fifths attained averages in the 60-69 percent range and the remaining proportion achieved averages of 70 percent and higher. Comparison with theoretical distributions revealed that the 60-69 percent category was substantially over-represented while the 50-59 percent, the 70-79 percent and the 80 percent and over categories were under-represented.

The findings above are difficult to interpret. They could indicate, as had the findings of an earlier Manitoba study, that there is a direct and independent relationship between average levels and the various post secondary educational goals.³ They could indicate that attendance at the M.I.T. constitutes fulfillment of an intermediate level of educational aspirations. They could merely reflect a tendency for students who secure averages lower than 60 percent to enter the work force instead of continuing education at the post secondary level. Firmer statements on the reported

³Leonard B. Siemens, and Dennis P. Forcese, School-Related Factors and the Aspiration Levels of Manitoba Senior High School Students (Winnipeg: University of Manitoba, Faculty of Agriculture and Home Economics, September, 1965), pp. 13-17.

findings, must await research involving, among other things, more suitable parametric data.

Insofar as course followed is concerned, it was found that four-fifths of the students had completed the University Entrance Course, slightly more than one-tenth had completed the General Course, while less than one-tenth had completed the Industrial Course. From comparison with theoretical distributions, it was found that students who had completed the General Course were over-represented, while those who had completed the University Entrance Course were under-represented.

The findings reported are readily, if incompletely, explainable in terms of two factors. The high proportion of "University Entrance" students at the M.I.T., as compared to proportions of "Industrial" and "General" students, may be attributed to the greater accessibility of this course to most students. The second finding may also be explained in terms of the raison d'etre of the respective courses. Its appellation suggests clearly the reason for the existence of the "University Entrance" course. Meanwhile, the intended purpose for the introduction of the "General" course--to prepare the student for entry into business and industry or vocational and technological training--explains, in part at least, why "General" students were over-represented at M.I.T.⁴

⁴Course of Studies, Department of Education, p. 47.

The data on failure record in high school were analyzed by direct comparison only. In light of the fact that 55 percent of the students had experienced at least partial failure, one-half of this proportion having had to repeat ~~at least~~ one grade, it was tentatively concluded that failure record was a factor in the decision to attend the M.I.T. The tests of independence, however, indicated that the observed influence may have been a function of two other correlates of the decision--sex and grade twelve average.

Notwithstanding its tentative disposition, the observed relationship between failure record in high school and the decision to attend the M.I.T. is consistent, broadly speaking, if not in specifics, with two previous studies. Bertrand⁵ hypothesized that failure in school conduces the student to adopt a low-grade pattern and, as a result, to settle for more modest vocational aspirations. Forcese and Siemens,⁶ working on the assumption that planning to go to the M.I.T. is third from the top in post high school aspirational levels, report indirect empirical support for Bertrand's hypothesis. Inasmuch as the hierarchical structure of post secondary educational

⁵Alvin L. Bertrand, "School Attendance and Attainment: Functions and Dysfunctions of School and Family Social Systems," Social Forces, 40 (1962), pp. 230-231.

⁶Leonard B. Siemens and Dennis P. Forcese, op. cit., p. 13.

avenues is a valid one for Manitoba, the findings of the present study also appear to corroborate Bertrand's hypothesis. Firm conclusion on this matter must, however, await, among other things, a more precise index of failure and a fuller investigation into the psychological impact of failure upon career plans.

The data on failure record in post high school was, likewise, analyzed by direct comparison only. The finding that 85 percent of the forty-one students who attempted other post secondary courses had experienced failure, points to a relationship between this variable and the decision. Analyses which were undertaken to explain the observed relationship failed to produce statistically significant results. They did, however, point to the possibility that a group of variates--in particular, high educational level of and high socioeconomic circumstances of parents coupled with their mediocre to low performance in high school--may have motivated the students who had failed at University to attempt an alternative form of post secondary education.

Home Situation

The data presented and the analyses performed justified rejection of the null hypothesis of no relationship between home situation and the decision. The survey showed that 86 percent of the students had "Normal" and the remaining proportion, "Broken" home backgrounds. Comparison of these

distributions with expected ones showed that students of "Broken" home circumstances were over-represented.

Both qualitative and quantitative evidence from previous research is helpful in explaining, to some extent, the possible reason for the over-representation of students from "Broken" home backgrounds. According to Dynes, unsatisfactory impersonal relationships with family of orientation impels the individual to aspire to higher occupational levels.⁷ Siemens reported apparently corroborative evidence insofar as attendance at university is concerned: specifically, he found that a slightly higher proportion of boys (but not girls) from broken than from normal homes aspired to university.⁸ McClelland et al, likewise, provided evidence which links male college students' achievement motivation with perceived lack of love.⁹

Close scrutiny of the foregoing theories affords hints of functional associations between home situation and two other correlates of the decision. Specifically, the first

⁷Russel R. Dynes et al, "Levels of Occupational Aspiration: Some Aspects of Family Experience as a Variable," American Sociological Review, 21 (1956), pp. 212-214.

⁸Leonard B. Siemens, The Influence of Selected Family Factors on the Educational and Occupational Aspiration Levels of High School Boys and Girls, (Winnipeg, University of Manitoba, Faculty of Agriculture and Home Economics, June, 1965), pp. 72-73.

⁹David McClelland et al, The Achievement Motive, (New York: Appleton-Century-Crofts, 1963), cited in Robert R. Bell,

theory gives rise to the question whether economic privations frequently associated with broken home status were not responsible for an individual's being highly motivated to climb the occupational ladder in the hope of avoiding similar deprivations in later life. Implicit in the second and third theories is the possibility that the sex variable may have accounted for much of the differences observed in the relationship being investigated here. Analyses undertaken to test the tenability of these hypotheses insofar as the present sample is concerned, however, failed to substantiate such functional relationships.

Religious Affiliation

The null hypothesis of no relationship between this factor and the decision was rejected. The survey showed that while students of many religious backgrounds attended the M.I.T., those of four religious groups made up four-fifths of the entire sample; students of United Church affiliation were the most numerous, making up 29 percent of the sample, those of Roman Catholic, Anglican and Ukrainian Catholic making up 19 percent, 16 percent and 14 percent, respectively. Comparison of the obtained distributions with parametric distributions showed that the proportion of M.I.T. students of Roman Catholic affiliation were lower than, those of United

(ed.), The Sociology of Education: A Sourcebook, (Homewood, Ill.: The Dorsey Press, Inc., 1962), p. 163.

Church affiliation were equal to, and those of Ukrainian Catholic and Anglican affiliation were greater than could be expected if these groups were representative of the Manitoba population. The chi square test of goodness of fit indicated that the differences between the M.I.T. and "population" distributions were too great to be attributed to chance.

Notwithstanding their overall consistency with empirical research, the findings reported here are not adequately explainable in terms of existing theory. On the basis of the Weber thesis, it was expected that because of their greater tendency to cultivate mental and spiritual peculiarities associated with high educational and occupational goals, Protestants would be, other things being equal, more likely to attend the M.I.T. than would Catholics.¹⁰ This, however, was not entirely the case for the present sample; for while close inspection of Table XII shows that Protestants did outnumber the Catholics by a ratio of approximately 2:1, closer inspection reveals that this ratio is a fairly accurate reflection of the distribution of the two groups in Manitoba. Furthermore, while the Roman Catholic group, by virtue of its under-representation at the M.I.T. confirms the Weber hypothesis, the other Catholic group, the Ukrainian Catholic, by virtue of over-representation negates it.

¹⁰Max Weber, The Protestant Ethic and the Spirit of Capitalism, trans. Talcott Parsons (London: Allen and Unwin, 1930), p. 70.

This discrepancy between reported findings and theory could indicate, as Greeley, and Mack and his associates have contended, that Weber's thesis is, owing to processes of acculturation and consequent homogeneity in child rearing practices, no longer a valid explanation for differential vocational ambitions between Protestants and Catholics.¹¹ Or, the discrepancy could indicate that extraneous variables associated with the two major religious groups may have coloured the findings reported. Indeed, this latter conclusion is supported by the results of further analyses; namely, that occupational class, ethnic origin of father and educational level of father were significantly associated with religious affiliation of the student.

Ethnic Origin of Parents

The null hypotheses of no relationships between the ethnic origin of the father and of the mother were rejected. According to the survey, the ethnic composition of the M.I.T. students, as measured by the country from which their fathers came to North America, was a heterogeneous one. Students whose fathers were of British origin made up 40 percent, those of

¹¹Andrew M. Greeley, Religion and Career: A Study of College Graduates. New York: Sheed and Ward, 1963, cited in The School Review. Vol. 71, No. 3. Chicago: University of Chicago Press, 1963, p. 156 and R.W. Mack, R.J. Murphy, and S. Yedlin, "The Protestant Ethic, Level of Aspiration and Social Mobility: An Empirical Test," American Sociological Review, 21 (1956), pp. 295-300.

Ukrainian origin, the second largest group, made up of 19 percent, those of German and Polish origin, 8 percent and 6 percent respectively, those of French and Russian origin 4 percent each, while those of "Other" origins (this category included thirteen ethnic groups of both European and Asiatic origins) made up the remaining 18 percent of the sample. Comparison of these distributions with those derived from 1961 Census figures for Manitoba revealed that students whose fathers were of Western European backgrounds, i.e., British, French, or German, were under-represented while those of Eastern European backgrounds, i.e., Polish, Russian or Ukrainian, were over-represented at the M.I.T. The test for goodness of fit indicated that the observed variation between the sample and the "population" figures is significant.

Although at first glance the under- and over-representations reported in this study may appear to belie existing empirical research,¹² such is not the case. In a recent Manitoba study, Siemens found that ethnic origin and post secondary educational aspiration levels were related. Specifically, he found that while greater proportions of boys of two of the under-represented groups at the M.I.T., i.e., those of German and British origin, tended to have either

¹²Supra, pp. 15-17. Based on the assumption that the various post high school goals are equally valued, students of British and German origin were, other things being equal, expected to be over-represented while students of Slavic origins were expected to be under-represented.

"High" or "Low" educational aspiration levels, the students of one of the over-represented groups, those of Ukrainian origin tended to have "Medium" aspiration levels. Similarly, Kristjanson found that a high proportion of the combined Russian-Ukrainian group of his sample (43 percent as compared to 30 percent for all the male students) aspired to post secondary training other than University.¹³ Therefore, inasmuch as the cited studies are "comparable" with the present study, the findings reported are not surprising.

What explanations can be adduced to account for the observed differences between the "Western" and "Eastern"¹⁴ European groups in their preference for training at the M.I.T.? On the basis of related literature, such phenomena can be explained in terms of ethnicity per se as well as in terms of factors which tend to be closely associated with particular ethnic groups. In a recent Manitoba study, Stancliff, basing his study on research reported by Kluckhohn, postulated that both the direction and rate of any form of social behaviour can be affected to a greater or lesser extent by the particular content and patterning of the values adhered to by given ethnic groups. Strodtbeck, likewise, ascribed importance to

¹³Siemens, op. cit., p. 144; and G. Albert Kristjanson, Manitoba High School Students and Dropouts (Winnipeg, Manitoba: Department of Agriculture), pp. 20-21.

¹⁴The labels, "Western" and "Eastern" are used for the sake of convenience, merely. "Western" refers to British, French and German origin; "Eastern" refers to Polish, Russian and Ukrainian origin.

cultural traditions and values as explanatory variables in educational behaviour.¹⁵

On the other hand, Gordon asserted that while ethnic group, social class, and type of residence are theoretically discrete, they tend to form in their combination a functioning unit which has an integrated impact on the participating individual. Along much the same lines, Kalback provided evidence to show that various differences between ethnic groups often reflect demographic processes and changes common to all ethnic groups.¹⁶

Analyses undertaken to "explain" the under- and over-representations suggest that several factors, namely, occupational class, socioeconomic level, educational level, and community of residence, may have contributed to the observed relationship to an even greater degree than did ethnicity per se.

The distributions of the ethnic origin of the mother paralleled those of the father. On the strength of direct

¹⁵Merton W. Stancliff et al, A Comparative Study of Value Orientations Among Three Ethnic Groups Living in the Province of Manitoba (Winnipeg, Manitoba: University of Manitoba, 1965), p. 2; and R.L. Strodbeck, "Family Interaction, Values and Achievement," cited in D.C. McClelland et al (eds.), Talent and Society (New York: D. Van Nostrand Co. Inc., 1958), p. 10.

¹⁶Milton E. Gordon, Assimilation in American Life: The Role of Race, Religion and National Origins (New York: Oxford University Press, 1964), p. 47; and Warren E. Kalback, "Some Demographic Aspects of Ukrainian Population in Canada,"

comparison of proportions, (Parametric data for statistical analysis were not available.) the null hypothesis of no significant relationship between this variable, and the decision was rejected. Not unexpectedly, in light of the parallel distributions, ethnic origin of the mother was associated in the same way with the occupational class, socioeconomic level, educational level and community of residence as was the ethnic origin of the father.

Citizenship Status

The survey showed that 47 percent of the M.I.T. students said their grandfather was the first to have acquired Canadian citizenship or to have established residence in Canada. This compares with 32 percent, 18 percent and 3 percent who said their great grandfathers, fathers, and the choosers themselves, respectively, had acquired citizenship or had established Canadian residence. The variation in proportions appeared great enough to warrant at least tentative rejection of the null hypothesis that citizenship status was not significantly related to the decision.

As expected, further analyses suggested that the obtained relationship was not, however, independent of two other correlates of the decision--ethnicity and socioeconomic level.

Slavs in Canada, Vol. I (Edmonton: Inter-University Committee on Canadian Slavs, 1966), pp. 54-69.

Social Status

The evidence presented supports previous research in the conclusion that social class, whether it is measured by occupational class or by socioeconomic level, is a strong conditioner of career choice. The results of the survey showed that all seven classes of the Blishen Occupational Class Scale were represented at the M.I.T.; those categorized as "White Collar" (i.e. those of Classes I to IV inclusive) comprised 49 percent of the sample; while those categorized as "Blue Collar" made up the remaining portion of the sample. Comparison with distributions adapted from 1961 Census figures revealed that only 27 percent, i.e., approximately one-half of the proportion that was enrolled at the M.I.T. could be classified as "White Collar". That the variations between the sample and the hypothesized distribution were unlikely to have occurred by chance is confirmed by the chi square test of goodness of fit.

When social status was measured by socioeconomic level, rather than by occupational class, the results also pointed to the rejection of the null hypothesis of no significant relationship between social status and the decision. This conclusion was reached not only from the fact that nearly four-fifths of the students came from homes of "High" socioeconomic level, but also from the fact that this proportion was six times as great as the hypothesized proportion for this level according to the most appropriate parametric data available.

Further analyses revealed that both these variables may owe the nature of their influence upon the decision to the manner in which they are associated with other correlates of the decision. To give specific examples, the positive relationship between "White Collar" background and attendance at the M.I.T. is explainable both in terms of class affiliation as well as in terms of the fact that members of this class generally tend to reside in large urban centers and has more than its proportionate share of fathers of "High" educational achievement. Meanwhile, the negative relationship between "Low" socioeconomic level and attendance at the M.I.T. can perhaps be attributed to socioeconomic privations, as well as to affiliation with ethno-religious groupings which, on the whole, do not possess a very strong tradition of pursuing post secondary educational goals.¹⁷

Educational Level of the Parents

The null hypotheses of no significant relationship between educational level of the father and of the mother were rejected. The survey showed that fewer than two-fifths of the fathers of M.I.T. students had reached post secondary education; of the remaining portion, equal proportions, that is, 42 percent each, had high school and elementary school educational levels. Comparison of these distributions with those which could be

¹⁷Bernard C. Rosen, "The Achievement Syndrome: Psychocultural Dimensions of Social Stratification," American Sociological Review, 21 (April, 1956), pp. 203-211.

expected on the basis of 1961 Census data on the highest grade attended by Manitoba males, five years of age and over not attending school, showed that students whose fathers had post secondary level education were over-represented, while those whose fathers had attained one of the two lower levels were under-represented at the M.I.T. The statistical test indicated that the differences between the sample and population distributions were significant.

The results of further analyses undertaken to "explain" the under- and over-representations of students according to educational level of the father were not conclusive, varying in some instances with the manner in which the data were categorized. Because of the discrepancy, it was only possible to speculate that the nature of the influence of father's educational level upon the decision depended largely upon the manner in which it was associated with other correlates of the decision, especially with ethnic origin, social status and, to a lesser degree, with community of residence.

Notwithstanding the speculative nature of the foregoing conclusion, it is nonetheless generally consistent with previous studies of relationships between the educational level of the father and the decision to pursue other forms of post secondary goals.¹⁸ For it has been demonstrated that there is a tendency for the more highly educated people not only to congregate in

¹⁸Supra, pp. 42-43.

large communities where both motivations and opportunities for pursuing post secondary goals are generally more numerous but also to possess a greater appreciation of and better means for supporting post secondary education.

The survey respecting the educational attainment level of the mother showed that only 11 percent of the mothers of M.I.T. students had post secondary educational level, 58 percent and 31 percent respectively, had high school and elementary education levels. The comparison with parametric distributions revealed that students whose mothers had either post secondary or high school levels of education were over-represented while those whose mothers had elementary level were under-represented at the M.I.T. The statistical test indicated that the noted differences could not be attributed to chance.

Further, chi square tests of independence revealed that the relationship between educational level of the mother and the decision was significantly associated with community of residence, social status and ethnicity.

Reaction of the Parents

The results of the survey showed that the proportion of students who said their fathers and mothers approved of their decision to attend the M.I.T. was nearly three times greater than the proportions of those who said their parents were indifferent to or disapproved of the decision. On the strength of this direct comparison, the null hypothesis of no relationship and the decision was tentatively rejected. Analyses which were

undertaken to explain the obtained relationships failed, with one exception (One analysis showed that the reaction of the mother was a function of the type of community in which she resided) to yield significant results.

Inasmuch as the perceived reactions accurately reflect true parental attitudes, these findings are in line with previous research.

Reaction of the Peer Group

The evidence presented confirmed the existence of a relationship between reaction of the peer group and the decision. This was inferred, from the fact that the proportion of M.I.T. students who had received approval from their boy/girl or best friend was at least twice as large as the proportion who had not received such approval. This conclusion was also inferred from the fact that nearly twice as many M.I.T. students tended to associate with the "Continuing Education" than with the "Entered Labor Force" subcultures. Finally, the fact that the two measures of peer group influence were not significantly associated with other correlates of the decision practically ruled out the possibility that the obtained relationship was a spurious one.

Reaction of Teacher

Whereas "Approval" of parents and peers was positively related to students' decisions, the opposite relationship held for the teacher influence. The survey showed that fewer than one of three of the teachers had approved of students' decisions.

Insofar as only the degree of relationship between the teacher and the decision is considered, this finding is easy to explain. According to one researcher, teacher influence vis a vis other sources of influence on such vocationally relevant decisions is characteristically either lower than that of other factors or so indirect that it is often undetected by the student.¹⁹ But when it comes to the question whether the observed influence is an independent one, or whether it is functionally associated with other correlates of the decision, the task of explanation is much more difficult. This is due in part to the dearth of research bearing directly on the relationship between teacher reaction and attendance at a technical as opposed to other forms of post secondary education, and in part to the failure, owing both to lack of foresight on the part of the investigator, as well as to the limited scope of the study, to elicit pertinent background information on the teacher.

Further analyses revealed that teacher approval was positively associated with male and non-university students and negatively with female and university entrance students. Whether the reported results can be attributed to conscious or unconscious bias on the part of the teacher toward non-university educational pursuits,²⁰ whether they can be explained

¹⁹Harold L. Hodgkinson, Education in Social and Cultural Perspectives (Englewood-Cliffs, New Jersey: Prentice-Hall Inc., 1962), p. 45.

²⁰W.G. Meyer and G.G. Thompson, "Sex Differences in the

in terms of the degree to which the teacher is pupil, rather than production-oriented,²¹ whether these results can simply be accounted for by the kind of information possessed by the teacher²² cannot, barring further simultaneous cross tabulation and depth interviewing, be adequately answered. One explanation for the negative association between teacher approval and female students who elected the M.I.T. may be that, acting as a surrogate of society, the teacher may have regarded it improper for the female to pursue other than homemaking careers.²³ Perhaps, too, this association may be due to the teachers' unawareness of the variety of career opportunities, besides nursing and teaching, that are available to and becoming increasingly acceptable to females.

Owing to possible inaccuracy in students' perceptions of teacher attitude, the findings on this variable must be interpreted with due caution.

Distribution of Teacher Approval and Disapproval Among Sixth-Grade Children," Journal of Educational Psychology, 47 (1956), pp. 385-396.

²¹Raymond Britton and John C. McDonald, "Occupational Preferences of Canadian High School Students," cited in Blisshen et al, Canadian Society: Sociological Perspectives (Toronto: MacMillan of Canada, 1968), p. 294.

²²Natalie Rogoff, "Local Social Structure and Educational Selection," cited in A.H. Halsey et al, Education, Economy and Society: A Reader in the Sociology of Education (New York: The Free Press of Glencoe, 1961), pp. 243-247.

²³Robert J. Havighurst, Education in Metropolitan Areas (Boston: Allyn and Bacon, Inc., 1966), p. 207.

Community of Residence

The null hypothesis was rejected. The survey showed that four-fifths of the students had "Urban" residence. Comparison of the M.I.T. distributions with Manitoba distributions for 1966 showed that students from Metropolitan Winnipeg were over-represented while students from "Rural" areas were under-represented at the M.I.T.

The findings, for the most part, support previous research findings. Because larger communities, in contrast to smaller ones, generally have not only more and superior educational facilities, such as laboratories and libraries, but because they also afford a greater variety of informal motivational mechanisms, such as normative climates, it is not surprising to find that students from the largest community were over-represented and students from the smallest communities were under-represented.²⁴ Nor is this same finding surprising on other grounds. According to the "life experiences hypothesis," youth from larger urban centres are constantly bombarded with intellectually stimulating experiences--experiences which tend to foster the idea of staying in school as long as possible. By contrast, youth from the smaller rural communities have limited opportunities for such experiences; instead, they are taught to regard work as a positive virtue. As a consequence,

²⁴Robert J. Havighurst, Education in Metropolitan Areas (Boston: Allyn and Bacon, Inc., 1966), p. 143.

they evince a strong tendency to enter the labor force as soon as possible, rather than to complete high school and pursue post secondary training.²⁵

The findings, in particular, the heavy concentration of students from Metropolitan Winnipeg, can also be explained by the "proximity hypothesis." The author of this view offers three possible reasons why high school graduates are more likely to continue schooling if they live in a "college" community: first, it is cheaper to live at home; second, it is possible for children to continue their schooling without disrupting the family unit; third, the existence of such a facility in the "home town" may suggest to those who might not otherwise have thought of continuing education that here is an attainable goal.

Tests of independence of association revealed that the over- and under-representations could also be explained, in part at least, by the tendency for people of higher social status to congregate in large urban centers.

A summary of the nineteen null hypotheses tested in the present study is given in Table LII.

²⁵Guy H. Orcutt et al, Micro-analysis of Socioeconomic Systems: A Simulation Study (New York: Harper and Bros., 1961), p. 273.

TABLE LII

SUMMARY OF FINDINGS OF NULL HYPOTHESES TESTED

Background Factors	Disposition		Remarks	
	Rej.	Accept.	S.E.	D.C.
Sex	#			#
Grade Twelve Average	#		#	
Course Completed	#		#	
Failure Record (H.S.)	#			#
Failure Record (P.H S.)	#			#
Home Situation	#		#	
Religious Affiliation	#		#	
Father's Ethnic Origin	#		#	
Mother's Ethnic Origin	#			#
Citizenship Status	#			#
Occupational Class	#		#	
Socioeconomic Level	#		#	
Father's Educational Level	#		#	
Mother's Educational Level	#		#	
Father's Reaction to Decision	#			#
Mother's Reaction to Decision	#			#
Peers' Reaction to Decision	#			#
Teacher's Reaction to Decision	#			#
Community of Residence	#		#	

Note: "S.E." signifies that the decision to accept or reject the null hypothesis is on the basis of statistical evidence, whereas "D.C." signifies that the decision was based on direct comparison, only.

III. CONCLUSIONS

Since this study was basically exploratory in nature, conclusions from it could not be expected to be highly definitive or extensive. Nevertheless, the data presented and the analyses performed justify several important and tentative conclusions. First, it would appear that the obtained results may have reflected an emphasis on post secondary vocational preparation in general, at least as much as on training at an institute of technology, specifically. This conclusion may be inferred from the fact that the relationships reported in this study were in many instances essentially similar to those reported in studies which investigated the correlates of other forms of post secondary education. Second, it would appear that the results provide a cynical commentary on the dream of equality of opportunity in gaining admission to higher status goals; for it was found that certain types of communities and social classes continue to foster the achievement of, while other types still bar easy access to such goals. Third, the results warrant the conclusion that guidance counselling services in the schools might have been ineffectual. Perhaps the one finding which most strikingly supports such a conclusion is that nearly one-fifth of the clientele at the M.I.T. had previously attempted, most of them unsuccessfully, other post high school courses. Fourth, there is also the possibility that this misguided or apparently misguided

vocational selection may be attributable to unwholesome attitudes on the part of teachers toward technical education. Though isolated, such volunteered remarks as "I felt all my high school teachers were incompetent. But I did approach the School Division Inspector who strongly recommended attending M.I.T."; and "N.B. M.I.T. was never mentioned at my high school." testify to the existence of such unwholesome attitudes.

IV. IMPLICATIONS

The following implications are suggested as a result of the conclusions reached in this study. The first-mentioned conclusion implies a need for further research to resolve the question whether the close similarity between many of the findings of the present study and those of studies which investigated the determinants of other post secondary goals are real or may be attributed to shortcomings in the design of the present study. Perhaps the first step towards this end should be a replication study employing a larger "population" including "second" as well as "first" year technology students. Similar investigations could then be made of the factors which influence Manitoba high school graduates to elect other forms of post secondary training. A final step in resolving the stated question could be a comparison of the findings of all such studies. The Atkinson studies could serve as a model for such an undertaking.

Inasmuch as the second conclusion is a valid one, two kinds of investigations might be launched. The first kind should seek to establish the existence of and the nature of forces which may be inimical to the realization of the principle of the equality of opportunity. By means of depth interviewing, for example, it may be possible to determine the validity of the observation made by the authors of C.O.M.E.F. as to one reason why farm youth are under-represented at post secondary institutions, namely, that the "jack of all trades" ethic characteristic of farm people may hinder their successful induction into an industrialized society. By means of a carefully conducted survey, it may be possible to determine the extent to which economic privations impel an aspirant to a given goal to choose another one which may be less rewarding from both the personal and material standpoints. If the findings of the studies suggested warrant it, another kind of research might be undertaken to counteract psychological and socioeconomic barriers. In this connection, attempts to answer such questions as the following might be made: How useful are field trips, career days, "open houses" and advertisements in assisting students to crystallize their vocational choice? At what point in their vocational development should students be subjected to such measures? Should such measures be directed only at the student, or should they also be directed at the parent?

The third and fourth conclusions suggest a need to

survey the extent to which guidance counsellors and teachers actually thwart, either wittingly or unwittingly, the legitimate aspirations of students to elect technological training as their form of post secondary educational goal. If the results of this kind of survey warrant it, further investigation should be undertaken to account for such behavior. In this connection a question such as the following may guide the investigation: Is the teacher's attitude toward technological training a function of his community of residence, of his sociocultural and economic background or of his teaching program?

Finally, results of various parts of the study suggest other challenging and useful areas for future research:

1. Research using factor analysis could determine the relative importance upon the decision to attend the M.I.T. of material as compared to non-material factors.
2. Research involving larger samples and employing the simultaneous cross-tabulation procedure could shed much light on the deviant cases observed and at the same time might uncover other relevant influences.

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APPENDIX A

TABLE LIII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY AVERAGE ATTAINED IN GRADE XII

Average Level	Males		Females		Total	
	N	%	N	%	N	%
50 - 59%	50	25.5	5	16.7	55	24.3
60 - 69%	118	60.2	15	50.0	133	58.8
70 - 79%	26	13.3	9	30.0	35	15.5
80 - 89%	2	1.0	1	3.3	3	1.4
Total	196	100.0	30	100.0	226	100.0

TABLE LIV

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY TYPE OF COURSE COMPLETED IN HIGH SCHOOL

Course Completed	Males		Females		Total	
	N	%	N	%	N	%
General	25	12.4	3	9.7	28	12.0
Industrial	19	9.4	0	0	19	8.2
University Entrance	158	78.2	28	90.3	186	79.8
Total	202	100.0	31	100.0	233	100.0

TABLE LV

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
BY FAILURE RECORD IN HIGH SCHOOL

Failure Record	Males		Females		Total	
	N	%	N	%	N	%
No failure	81	39.9	23	74.2	104	44.4
Repeated subject(s)	56	27.6	6	19.4	62	26.6
Repeated grade	32	15.8	2	6.5	34	14.5
Repeated grade(s) and/or subject(s)	34	16.7	0	0.0	34	14.5
Total	203	100.0	31	100.0	234	100.0

TABLE LVI

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY FAILURE RECORD IN POST HIGH SCHOOL COURSE(S)

Failure Record	Males		Females		Total	
	N	%	N	%	N	%
No failure	6	15.8	0	0.0	6	14.6
Failure	32	84.2	3	100.0	35	85.4
Total	38	100.0	3	100.0	41	100.0

TABLE LVII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY HOME SITUATION

Home Situation	Males		Females		Total	
	N	%	N	%	N	% P
Normal	172	84.7	28	90.3	200	85.5
Broken	31	15.3	3	9.7	34	14.5
Total	203	100.0	31	100.0	234	100.0

TABLE LVIII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY RELIGIOUS AFFILIATION

Religious Affiliation	Males		Females		Total	
	N	%	N	%	N	%
Anglican	31	15.3	7	22.6	38	16.2
Ukrainian Catholic	27	13.3	5	16.1	32	13.7
Greek Orthodox	9	4.4	1	3.2	10	4.3
Mennonite	8	3.9	0	0.0	8	3.4
United Church	58	28.6	10	32.3	68	29.1
Roman Catholic	42	20.7	3	9.7	45	19.2
Other	28	13.8	5	16.1	33	14.1
Total	203	100.0	31	100.0	234	100.0

TABLE LIX

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	Males		Females		Total	
	N	%	N	%	N	%
British	79	38.9	15	48.4	94	40.2
French	10	4.9	0	0.0	10	4.3
German	18	8.9	1	3.2	19	8.1
Polish	14	6.9	1	3.2	15	6.4
Russian	9	4.4	1	3.2	10	4.3
Ukrainian	39	19.2	6	19.4	45	19.2
Other	34	16.7	7	22.6	41	17.5
Total	203	100.0	31	100.0	234	100.0

TABLE LX

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY ETHNIC ORIGIN OF MOTHER

Ethnic Origin of Mother	Males		Females		Total	
	N	%	N	%	N	%
British	79	38.9	15	48.4	94	40.2
French	9	4.4	1	3.2	10	4.3
German	15	7.4	1	3.2	16	6.8
Polish	15	7.4	0	0.0	15	6.4
Russian	8	3.9	1	3.2	9	3.8
Ukrainian	39	19.2	6	19.4	45	19.2
Other	38	18.7	7	22.6	45	19.2
Total	203	100.0	31	100.0	234	100.0

TABLE LXI

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY CITIZENSHIP STATUS

Citizenship Status	Males		Females		Total	
	N	%	N	%	N	%
Great grandfather	64	33.2	8	25.8	72	32.1
Grandfather	87	45.1	17	54.8	104	46.5
Father	36	18.7	5	16.1	41	18.3
Chooser	6	3.1	1	3.2	7	3.1
Total	193	100.0	31	100.0	224	100.0

TABLE LXII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY OCCUPATIONAL CLASS OF FATHER

Occupational Class	Males		Females		Total	
	N	%	N	%	N	%
Class I	4	2.0	0	0.0	4	1.8
Class II	37	18.9	3	10.0	40	17.7
Class III	27	13.8	9	30.0	36	15.9
Class IV	30	15.3	5	16.7	35	15.5
Class V	57	29.1	9	30.0	66	29.2
Class VI	27	13.8	2	6.7	29	12.8
Class VII	14	7.1	2	6.7	16	7.1
Total	196	100.0	30	100.0	226	100.0

TABLE LXIII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY SOCIOECONOMIC LEVEL OF PARENT(S)

Socioeconomic Level	Males		Females		Total	
	N	%	N	%	N	%
Level 1	26	12.9	3	9.7	29	12.5
Level 2	63	31.3	17	54.8	80	34.5
Level 3	67	33.3	4	12.9	71	30.6
Level 4	23	11.4	6	19.4	29	12.5
Level 5	13	6.5	1	3.2	14	6.0
Level 6	9	4.5	0	0.0	9	3.9
Total	201	100.0	31	100.0	232	100.0

TABLE LXIV

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY EDUCATIONAL LEVEL OF FATHER

Educational Level of Father	Males		Females		Total	
	N	%	N	%	N	%
Less than grade five	21	10.4	1	3.2	22	9.4
Grades five to eight	68	33.7	9	29.0	77	33.1
Some high school	54	26.7	12	38.7	66	28.4
High school graduation	28	13.9	2	6.5	30	12.9
Some post high school	18	8.9	5	16.1	23	9.8
University graduation	13	6.4	2	6.5	15	6.5
Total	202	100.0	31	100.0	233	100.0

TABLE LXV

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY EDUCATIONAL LEVEL OF MOTHER

Educational Level of Mother	Males		Females		Total	
	N	%	N	%	N	%
Less than grade five	13	6.4	1	3.2	14	6.0
Grades five to eight	52	25.7	6	19.4	58	24.9
Some high school	69	34.2	14	45.2	83	35.6
High school graduation	45	22.3	5	16.1	50	21.5
Some post high school	15	7.4	5	16.1	20	8.6
University graduation	8	4.0	0	0.0	8	3.4
Total	202	100.0	31	100.0	233	100.0

TABLE LXVI

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY PERCEIVED REACTION OF FATHER TO THE DECISION
TO ATTEND THE M.I.T.

Perceived Reaction of Father	Males		Females		Total	
	N	%	N	%	N	%
Approval	148	72.9	22	71.0	170	72.6
Disapproval	7	3.4	1	3.2	8	3.4
Indifference	48	23.6	8	25.8	56	23.9
Total	203	100.0	31	100.0	234	100.0

TABLE LXVII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY PERCEIVED REACTION OF MOTHER TO THE DECISION
TO ATTEND THE M.I.T.

Perceived Reaction of Mother	Males		Females		Total	
	N	%	N	%	N	%
Approval	149	73.4	23	74.2	172	73.5
Disapproval	10	4.9	0	0.0	10	4.3
Indifference	44	21.7	8	25.8	52	22.2
Total	203	100.0	31	100.0	234	100.0

TABLE LXVIII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY PERCEIVED REACTION OF BOY/GIRL FRIEND TO THE
DECISION TO ATTEND THE M.I.T.

Perceived Reaction of Boy/Girl Friend	Males		Females		Total	
	N	%	N	%	N	%
Approval	129	79.6	19	73.1	148	78.7
Disapproval	6	3.7	4	15.4	10	5.3
Indifference	27	16.7	3	11.5	30	16.0
Total	162	100.0	26	100.0	188	100.0

TABLE LXIX

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY PERCEIVED REACTION OF BEST FRIEND TO THE
DECISION TO ATTEND THE M.I.T.

Perceived Reaction of Best Friend	Males		Females		Total	
	N	%	N	%	N	%
Approval	25	67.6	4	80.0	29	69.1
Disapproval	3	8.1	1	20.0	4	9.5
Indifference	9	24.3	0	0.0	9	21.4
Total	37	100.0	5	100.0	42	100.0

TABLE LXX

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY IMMEDIATE DESTINATION OF BEST FRIEND

Immediate Destination	Males		Females		Total	
	N	%	N	%	N	%
Continuing education	125	61.6	20	64.5	145	62.0
Entered labor force	78	38.4	11	35.5	89	38.0
Total	203	100.0	31	100.0	234	100.0

TABLE LXXI

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY IMMEDIATE DESTINATION OF MAJORITY OF FRIENDS

Immediate Destination	Males		Females		Total	
	N	%	N	%	N	%
Continuing education	110	60.4	21	72.4	131	62.1
Entered labor force	72	39.6	8	27.6	80	37.9
Total	182	100.0	29	100.0	211	100.0

TABLE LXXII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY PERCEIVED REACTION OF TEACHER TO THE
DECISION TO ATTEND THE M.I.T.

Perceived Reaction of Teacher	Males		Females		Total	
	N	%	N	%	N	%
Approval	65	32.0	2	6.5	67	28.6
Disapproval	92	45.3	21	67.7	113	48.3
Indifference	46	22.7	8	25.8	54	23.1
Total	203	100.0	31	100.0	234	100.0

TABLE LXXIII

FREQUENCY AND PERCENTAGE DISTRIBUTION OF STUDENTS BY SEX
AND BY COMMUNITY OF RESIDENCE

Community of Residence	Males		Females		Total	
	N	%	N	%	N	%
Urban						
50,000 and over	137	67.5	16	51.6	153	65.4
5,000 - 49,999	13	6.4	3	9.7	16	6.8
500 - 4,999	17	8.4	6	19.4	23	9.8
Rural						
499 and under	18	8.9	2	6.5	20	8.5
Farm	18	8.9	4	12.9	22	9.4
Total	203	100.0	31	100.0	234	100.0

APPENDIX B

TABLE LXXIV
 ASSOCIATION BETWEEN AVERAGE ATTAINED IN GRADE
 XII AND FAILURE RECORD IN HIGH SCHOOL

Failure Record	Average Level				Total
	50-59%	60-69%	70-79%	80% +	
No failures	18	56	26	3	103
Repeated subject(s)	14	43	1	0	58
Repeated grade	7	20	5	0	32
Repeated grade(s) and/or subject(s)	16	14	3	0	33
Total	55	133	35	3	226
D/F=9, $\chi^2=25.84$, P/.01					

TABLE LXXV
ASSOCIATION BETWEEN ETHNIC ORIGIN OF
FATHER AND ETHNIC ORIGIN OF MOTHER

Ethnic Origin of Mother	Ethnic Origin of Father							Total
	Br.	Fr.	Ger.	Pol.	Rus.	Ukr.	Other	
British	70	5	5	1	1	0	12	94
French	4	3	2	0	0	1	0	10
German	2	0	9	1	0	2	2	16
Polish	2	0	0	8	2	3	0	15
Russian	0	0	1	1	5	2	0	9
Ukrainian	0	1	0	3	2	35	4	45
Other	16	1	2	1	0	2	23	45
Total	94	10	19	15	10	45	41	234

$D/F=36, \chi^2=334.84, P/.001$

TABLE LXXVI
ASSOCIATION BETWEEN RELIGIOUS AFFILIATION
AND ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	Religious Affiliation							Total
	Ang.	Uk.	C.	Gr.	O.	Menn.	United R.C.	
British	24	0	0	0	0	52	8	94
French	0	0	1	0	0	0	8	10
German	2	0	1	0	0	6	6	19
Polish	0	2	0	0	0	3	7	15
Russian	2	0	1	4	0	0	0	10
Ukrainian	1	27	7	3	1	5	1	45
Other	9	3	0	1	6	11	11	41
Total	38	32	10	8	68	45	33	234

$D/F=36, \chi^2=219.40, P/.001$

TABLE LXXVII

ASSOCIATION BETWEEN CITIZENSHIP STATUS
AND ETHNIC ORIGIN OF FATHER

Ethnic Origin of Father	Great Grand- Father G	Grand- Father	Father Father	Chooser	Total
British	43	40	5	1	89
French	7	2	0	0	9
German	3	9	5	2	19
Polish	2	6	7	0	15
Russian	0	7	3	0	10
Ukrainian	10	21	11	2	44
Other	7	19	10	2	38
Total	72	104	41	7	234

D/F=18, $\chi^2=37.70$, $P<.01$

TABLE LXXVIII

ASSOCIATION BETWEEN OCCUPATIONAL CLASS
AND EDUCATIONAL LEVEL OF FATHER

Educational Level of Father	Occupational Class							Total
	I	II	III	IV	V	VI	VII	
Less than Grade V	0	2	2	1	8	4	5	22
Grades V to VIII	0	2	7	14	33	11	8	75
Some High School	0	8	15	14	20	6	2	65
High School Graduation	0	8	5	3	2	6	1	25
Some Post High School	1	12	4	2	3	1	0	23
University Graduation	3	8	3	1	0	0	0	15
Total	4	40	36	35	66	28	16	225

D/ F=30, $\chi^2=86.95$, P/.001

TABLE LXXX

ASSOCIATION BETWEEN PERCEIVED REACTION OF
MOTHER AND COMMUNITY OF RESIDENCE

Community of Residence	Reaction of Mother			Total
	Approval	Disapproval	Indifference	
50,000 & over	124	5	24	153
5,000 - 49,999	10	0	6	16
500 - 4,999	10	2	11	16
499 & under	14	0	6	20
Farm	14	3	5	22
Total	172	10	52	234
D/F=8, $\chi^2=16.72$, P/.05				

TABLE LXXXI

ASSOCIATION BETWEEN PERCEIVED REACTION OF FATHER
AND PERCEIVED REACTION OF MOTHER

Reaction of Mother	Reaction of Father			Total
	Approval	Disapproval	Indifference	
Approval	149	3	20	172
Disapproval	5	3	2	10
Indifference	19	2	34	52
Total	170	8	56	234
D/F=4, $\chi^2=77.48$, P/.001				

TABLE LXXXII

ASSOCIATION BETWEEN COURSE COMPLETED IN GRADE
XII AND PERCEIVED REACTION OF TEACHER

Reaction of Teacher	Course Completed			Total
	General	Industrial	University Entrance	
Approval	20	15	31	66
Disapproval	7	3	103	113
Indifference	1	1	52	54
Total	28	19	186	233
D/F=4, $\chi^2=56.17$, P/.001				

TABLE LXXXIV
ASSOCIATION BETWEEN SOCIOECONOMIC LEVEL
AND COMMUNITY OF RESIDENCE

Community of Residence	Socioeconomic Level						Total
	I	II	III	IV	V	VI	
50,000 & over	22	57	51	13	6	3	152
5,000 - 49,999	3	7	4	0	1	0	15
500 - 4,999	3	6	6	4	4	0	23
499 & under	1	6	5	3	1	4	20
Farm	0	4	5	9	2	2	22
Total	29	80	71	29	114	9	232

$D/F=20, \chi^2=35.93, P/.02$

APPENDIX C

QUESTIONNAIRE

1. What was your age on September 1, 1965? _____
2. What is your sex? 1 ☐ Male 2 ☐ Female
3. (a) Is your father living? 1 ☐ Yes 2 ☐ No
- (b) Is your mother living? 1 ☐ Yes 2 ☐ No
- (c) If both parents are living, are they separated or divorced?
- 1 ☐ Yes 2 ☐ No

NOTE: Should this be necessary in the succeeding questions, please substitute "guardian(s)" for "father," "mother," or "parents."

4. (a) Which of the following items do your parents have in their home? (Indicate by checking the appropriate item.)
- ☐ Television set; ☐ Record player; ☐ Telephone; ☐ Daily paper;
- ☐ Running water; ☐ Power washing machine; ☐ Electric refrigerator.
- (b) Do your parents own either a 1964 or more recent model of car?
- 1 ☐ Yes 2 ☐ No
- (c) Do your parents own their home? (Interpret "own" to mean either own outright or in the process of buying.)
- 1 ☐ Yes 2 ☐ No
- (d) What is the construction of your parents' home? (Indicate by means of a check mark.)
- ☐ Brick; ☐ Stucco; ☐ Painted frame; ☐ Unpainted frame.
- (e) Including basements, bathrooms, and hallways, how many rooms are there in your parents' home?
- _____
- (f) How many persons live in your parents' home? (Include yourself if you live at home.)
- _____
5. Of the following, who was the first to have acquired Canadian citizenship or to have established at least five years residence in Canada?
- ☐ Your great grandfather; ☐ Your grandfather; ☐ Your father;
- ☐ You, yourself; ☐ Other (Specify). _____

6. Check the country from which your father or his male ancestor came to North America.

- | | |
|-------------------------------------|--|
| 1 <input type="checkbox"/> England | 6 <input type="checkbox"/> Iceland |
| 2 <input type="checkbox"/> Ireland | 7 <input type="checkbox"/> Ukraine |
| 3 <input type="checkbox"/> Scotland | 8 <input type="checkbox"/> Russia |
| 4 <input type="checkbox"/> Germany | 9 <input type="checkbox"/> Other (Specify) |
| 5 <input type="checkbox"/> France | _____ |

7. Check the country from which your mother or her male ancestor came to North America.

- | | |
|-------------------------------------|--|
| 1 <input type="checkbox"/> England | 6 <input type="checkbox"/> Iceland |
| 2 <input type="checkbox"/> Ireland | 7 <input type="checkbox"/> Ukraine |
| 3 <input type="checkbox"/> Scotland | 8 <input type="checkbox"/> Russia |
| 4 <input type="checkbox"/> Germany | 9 <input type="checkbox"/> Other (Specify) |
| 5 <input type="checkbox"/> France | _____ |

8. Check the highest level of education attained by your father.

- | | |
|--|---|
| 1 <input type="checkbox"/> Less than grade five | 5 <input type="checkbox"/> Some training at the post high school level. (Specify) |
| 2 <input type="checkbox"/> Grades five to eight | |
| 3 <input type="checkbox"/> Some high school | 6 <input type="checkbox"/> Graduate of university |
| 4 <input type="checkbox"/> Graduate of high school | |

9. Check the highest level of education attained by your mother.

- | | |
|--|---|
| 1 <input type="checkbox"/> Less than grade five | 5 <input type="checkbox"/> Some training at the post high school level. (Specify) |
| 2 <input type="checkbox"/> Grades five to eight | |
| 3 <input type="checkbox"/> Some high school | 6 <input type="checkbox"/> Graduate of university |
| 4 <input type="checkbox"/> Graduate of high school | |

10. Check the item which best describes the community in which your parents reside.

- | | |
|---|--|
| 1 <input type="checkbox"/> Metropolitan Winnipeg | 4 <input type="checkbox"/> Village (Pop. 100-499) |
| 2 <input type="checkbox"/> City (Other than Metro Wpg.) | 5 <input type="checkbox"/> Hamlet (Pop. less than 100) |
| 3 <input type="checkbox"/> Town (Pop. 500-4,999) | 6 <input type="checkbox"/> Farm |

11. Check the religion into which you were born.

- | | |
|---|--|
| 1 <input type="checkbox"/> Anglican | 5 <input type="checkbox"/> United Church of Canada |
| 2 <input type="checkbox"/> Ukrainian Catholic | 6 <input type="checkbox"/> Roman Catholic |
| 3 <input type="checkbox"/> Greek Orthodox | 7 <input type="checkbox"/> Other (Specify) |
| 4 <input type="checkbox"/> Mennonite | _____ |

12. What is your father's occupation? (Be as specific as you can. For example: sales clerk at Eaton's, self-employed plumber, owns a store and employs four people. If he is retired or not living, tell what his occupation was.)

13. What course are you presently registered in?

- | | |
|--|--|
| 1 <input type="checkbox"/> Business Administration | 5 <input type="checkbox"/> Electrical Technology |
| 2 <input type="checkbox"/> Secretarial Science | 6 <input type="checkbox"/> Electronic Technology |
| 3 <input type="checkbox"/> Chemical Technology | 7 <input type="checkbox"/> Mechanical Technology |
| 4 <input type="checkbox"/> Civil Technology | |

14. Which course did you complete in high school?

- | | |
|--|--|
| 1 <input type="checkbox"/> General | 3 <input type="checkbox"/> Vocational (Specify whether |
| 2 <input type="checkbox"/> University Entrance | <input type="checkbox"/> Commercial or <input type="checkbox"/> Industrial.) |

15. What average level did you attain in your grade twelve final examinations? (Please circle the appropriate level.)

50-54% 55-59% 60-64% 65-69% 70-74% 75-79% 80-84% 85-89%

Other (Specify) _____

16. (a) Did you ever repeat a complete grade in high school?

1 ☐ Yes, the following: _____ 2 ☐ No

- (b) Did you ever repeat any subjects in grade eleven?

1 ☐ Yes, the following: _____ 2 ☐ No

- (c) Did you ever repeat any subjects in grade twelve?

1 ☐ Yes; the following: _____ 2 ☐ No

- (d) Did you ever take any education or training for which high school standing was a prerequisite?

1 ☐ Yes, the following: _____ 2 ☐ No

☐ Passed; ☐ Did not complete; ☐ Failed

NOTE: Questions 17 to 20 are OPINION QUESTIONS. Please indicate what you believe to be the correct response to them.

17. Place yourself in the following situation: You have received your grade twelve examination results and have informed your parents of your desire to attend the Manitoba Institute of Technology. Each of the following statements represents how your parents might have felt about this decision. If you think that a statement describes your father's/mother's feeling about your decision, circle AGREE; if, in your opinion, the statement does not represent your father's or mother's feeling about the decision, circle DISAGREE.

(a) Your father would think that:

--this was an excellent decision.	AGREE	DISAGREE
--all in all, this was a good decision.	AGREE	DISAGREE
--it was really up to me to decide.	AGREE	DISAGREE
--I should re-consider the decision.	AGREE	DISAGREE
--it was a very unwise decision.	AGREE	DISAGREE

(b) Your mother would think that:

--this was an excellent decision.	AGREE	DISAGREE
--all in all, this was a good decision.	AGREE	DISAGREE
--it was really up to me to decide.	AGREE	DISAGREE
--I should re-consider the decision.	AGREE	DISAGREE
--it was a very unwise decision.	AGREE	DISAGREE

18. Suppose that upon receipt of your examination results, you were to approach your favorite home room teacher (from high school) with the question: "Now that I have passed my grade twelve examinations, what educational course should I follow?"

Your home room teacher would:

--strongly urge you to attend the M.I.T.	AGREE	DISAGREE
--ask you to consider taking some technology course.	AGREE	DISAGREE
--say it didn't really matter to him/her.	AGREE	DISAGREE
--suggest you think about going to university.	AGREE	DISAGREE
--strongly recommend that you go to university.	AGREE	DISAGREE

19. (a) What are most of you friends doing this year?

- | | |
|---|--|
| 1 <input type="checkbox"/> Completing high school | 5 <input type="checkbox"/> Graduated from high school and: |
| 2 <input type="checkbox"/> Attending the Manitoba
Institute of Technology | <input type="checkbox"/> working full time |
| 3 <input type="checkbox"/> Attending university | <input type="checkbox"/> working part time |
| | <input type="checkbox"/> out of work |
| 4 <input type="checkbox"/> Taking some other form of
education or training
(Specify)
_____ | 6 <input type="checkbox"/> Quit high school and: |
| | <input type="checkbox"/> working full time |
| | <input type="checkbox"/> working part time |
| | <input type="checkbox"/> out of a job |

(b) What is your girl/boy or closest friend doing this year? (Be specific. For example; attending the M.I.T. and taking Civil Technology, working as a clerk for Air Canada, etc.)

20. Answer either (A) or (b).

(a) If you have a girl/boy friend, check the item which best indicates her/his feeling about your decision to attend the Manitoba Institute of Technology.

- | | |
|--|---|
| 1 <input type="checkbox"/> Agreed a lot | 4 <input type="checkbox"/> Disagreed a lot |
| 2 <input type="checkbox"/> Agreed a little | 5 <input type="checkbox"/> Disagreed a little |
| 3 <input type="checkbox"/> Indifferent | |

(b) If you do not have a girl/boy friend, check the item which best indicates your closest friend's feeling about your decision to attend the Manitoba Institute of Technology.

- | | |
|--|---|
| 1 <input type="checkbox"/> Agreed a lot | 4 <input type="checkbox"/> Disagreed a lot |
| 2 <input type="checkbox"/> Agreed a little | 5 <input type="checkbox"/> Disagreed a little |
| 3 <input type="checkbox"/> Indifferent | |

NOTE: Please check to see that you answered all the questions.

THANK YOU for your assistance.