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EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS
OF ONTARIO HIGH SCHOOL STUDENTS:
A MULTIVARIATE ANALYSIS

by

SIDNEY NORMAN GILBERT, B. COM., C.A., M.A.

A dissertation submitted to the Faculty of
Graduate Studies in partial fulfilment of
the requirements for the degree of

Doctor of Philosophy

Department of Sociology and Anthropology

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August 28, 1973

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of Ontario High School Students: A
Multivariate Analysis"

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Abstract

It was deemed important to study aspirations for two basic reasons. First, aspirations mediate most of the effects of social background variables on educational and occupational attainment levels. Secondly, aspirations represent the motivational component (as distinct from the financial aspect) that students need to attain higher levels of education. Educational and occupational aspirations were found to be related to various factors - socio-economic status, peer influences, family influences, family dynamics, intelligence, program of study, self concept of ability, sex and ethnic and religious group membership. Contemporary research in this area was found to involve specifying the process of aspiration formation by the use of multivariate causal models.

A theoretical framework for the explanation of educational and occupational aspirations was elaborated. Technology was seen as producing an objective range of occupational positions while ideology was viewed as giving individuals the necessary motivation to fill these positions. The two ideological dimensions of equality of condition and equality of opportunity were cross-classified producing four ideal types of motivational societies. Each of these societies was characterized by a unique moral theory and by a unique relationship among social variables. In our case, each of these societies was characterized by a different pattern of relationships between social background characteristics and educational and occupational aspirations.

Canadian and American societies were placed on the typology developed. A review of the relevant literature indicated that both societies maintained the same level of material inequalities but that American society maintained greater equality of opportunity, particularly educational opportunity, than Canadian society. Based upon this assessment and placement on the typology, hypotheses were formed concerning the relative role of ascribed and achieved characteristics. An American model of aspiration formation was replicated and comparative data were examined. In Canada, the relative role of ascribed variables such as socio-economic status and family influence was found to be greater than in the United States.

An extended model of aspiration formation was developed. A student's self concept of ability and program of study were added as intervening variables in the process of aspiration formation. Family influence, self concept of ability and program of study were found to be the most important direct influences upon a student's educational and occupational aspirations. In turn, socio-economic status was found to be strongly related to family influence thus again emphasizing the role of ascribed characteristics in the formation of educational and occupational aspirations.

To Bev

Acknowledgement

I would like to thank Professors Porter and Blishen for the opportunity to become involved in a large-scale ongoing and important research project. The experience gained under their guidance has truly been educational. Members of my committee, Professors McFarlane and Forcese, and other departmental members have been extremely helpful in assisting me in systematizing the thoughts that appear in the dissertation. I would also like to express my appreciation to Hugh McRoberts, Maria Barrados and Bill Bradley for their work on the project and for extremely interesting discussions on common problems. I am also grateful to Gerry Cosgrove for her care in typing the final manuscript and to Doug Higgins for his careful draughting of the path diagrams. Finally, I would like to dedicate this dissertation to my wife, Bev, whose understanding and encouragement made it all possible.

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CHAPTER I
INTRODUCTION

One of the most important problems faced by a modern society is how to efficiently allocate roles and resources such that those positions requiring advanced levels of training and education are filled by those actors most capable of acquiring these skills and performing at this high level of competence. For this reason, equality of educational opportunity is usually conceded as the sine qua non of effective resource allocation. Equality of opportunity would require that allocation to educational or occupational roles be based upon performance criteria. In other words, students attaining higher levels of education, university education for example, should be those of superior intellectual ability (if IQ were a pure measure of inherent ability), those with superior academic performance, and those with high potential rather than those from the more advantaged socio-economic positions, but lacking these qualities.

However, as has been demonstrated with 1951 and 1956 data, the class distribution of university students in Canada is heavily biased in favour of higher SES students, (Porter, 1965). Although data contained in an Ontario Department of University Affairs study paper and data published by E. A. Fisher (1970) created

the illusion that such discrepancies were disappearing, there are good reasons for not taking such data seriously (cf. Marsden and Harvey, 1971). In fact, table 1-1 on page 3 tends to confirm the proposition that universities, in terms of the class background of students, serve, in greater measure, the privileged rather than all social classes.

Column one represents the actual marginal distribution of fathers' SES as measured by the Blishen (1967) scale of all students in our grade 12 sample. Thus column one represents the actual class distribution of the sample. Column two represents the class background of the hypothetical university enrollment if all those students in our grade 12 sample who expected to graduate from university with a first degree or better actually progressed to university. Thus, column two represents a synthetic cohort of university students based upon their expectations. If all classes were equally represented at university, column two would equal column one. However, such is not the case and the third column shows the percentage point difference between the class background of students in general, and the class background of those who expect to attend university. Column four shows the percentage over or under represented. As is evident from column four of the table, higher socio-economic students would be heavily over-represented and the lower socio-economic students heavily under-represented at universities in Ontario. Furthermore, one could contend that such a comparison presents a muted picture of the situation as lower SES students are more likely to have unrealistic

TABLE 1-1

SYNTHETIC COHORT COMPARISON DEMONSTRATING CLASS OVER AND UNDER REPRESENTATION AT ONTARIO UNIVERSITIES

FATHERS' OCCUPATIONAL STATUS	ACTUAL MARGIN-AL DISTRIBUTION OF FATHERS' SES	PROJECTED ENROLMENT	PERCENTAGE POINT DIFFERENCE	PERCENTAGE OVER OR UNDER REPRESENTED (3 : 1)
I	6.4	12.5	+6.1	+95.3
II	7.8	12.9	+5.1	+65.4
III	10.8	14.4	+3.6	+33.3
IV	19.7	22.9	+3.2	+16.2
V	37.4	29.2	-8.2	-21.9
VI	10.8	8.1	-2.7	-25.0

NOTE: The occupational status groups used in this table are derived by taking the first digit of the Blishen socio-economic index for occupations (1967). An index score for an occupation which was 70 or greater resulted in placement into Group I -- the highest status -- a score of between 60 and 69 would produce placement into group II, and so on.

expectations of university attendance than higher SES students.

It has been demonstrated that aspirations are very important to the process of educational and occupational status attainment. (Sewell, Haller and Ohlendorf, 1970; Haller and Portes, 1973) Not only are aspirations fairly strong predictors of attainments but they also account for variance in attainments not accounted for by social background characteristics (Sewell, 1971:799; Haller and Portes, 1973:68-70). In commenting on aspirations it has been noted that:

It is the last set of variables which constitutes the strategic center of the model. Aspirations mediate most of the influence of antecedent factors on status attainment. Even when educational attainment is taken into account, occupational aspirations still exercise a significant direct effect on occupational attainment. (Haller and Portes, 1973:68)

Accordingly, the process of educational and occupational status attainment has come to be viewed as comprised of two processes. The first process represents the formation of educational and occupational aspirations and the second process represents the enactment and realization of these aspirations. (Haller and Portes, 1973:68-70). This dissertation is concerned with the first process, that is, with the process of aspiration formation.

This dissertation examines two of the most salient variables affecting individual attainments or outcomes - that is, it examines educational and occupational aspirations of Ontario high school

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students. It is important to study aspirations because they represent the motivational component students need to attain the higher levels of education. In Canada it is important to study aspirations of high school students because unlike the United States, here, there is the suggestion that it is during high school, rather than at the leap from high school to university as in the United States, that equality of opportunity is defeated through the attrition of lower SES students. Although financial and genetic components are also necessary for higher education; this dissertation would focus on education and occupational aspirations as the main dependent variables and as the main referents of the motivational process which is so important for educational and occupational attainments. Many researchers concerned with the social policy implications of research in this area have advocated the complete removal of financial barriers to promote equality of opportunity. While this may be necessary, it may not be sufficient. It may not be enough - the removal of motivational differences in the absolute sense may also be necessary before complete equality of educational opportunity is attainable.

This position has been expressed succinctly by Pike:

The second proposition goes a step further to suggest that even if the major institutional and financial obstacles to equality of educational opportunity (including those which directly influence scholastic performance) were overcome, there might still be significant variations in the proportions of children of different classes and groups completing high school and entering university, since there are deep-rooted, and in a sense, quite natural, social variations in young people's desire for a

university education. These variations in motivation, so the proposition continues, are likely to persist even when the major institutional and financial barriers to high school completion and university admission are lowered. The research data on which the 'motivation argument' is based, is sometimes used to counteract arguments that all class and group differences in university participation rates can be easily explained in terms of inequalities in the distribution of income. (Pike, 1970:97)

In the study from which the data used in this dissertation are drawn,¹ there are a number of questions which have a bearing upon this important question. Parents, primarily mothers, of high school students were asked "Thinking of your own family finances, would you be prepared to spend money for fees and living expenses to send (student) to university or to a community college?" Of the parents of grade 8 students, 70% replied yes while only 12% replied no, with the remainder having no answer. Similarly, of the parents of grade 10 students, many replied yes (81%) while few replied no (15%). The same result occurred for parents of grade 12 students with 79% replying yes and only 15% replying no to this question.

The data are more interesting, however, when analyzed by social class. Table 1-2 presents this analysis. As the table reveals, more upper class parents replied yes than did lower class parents while the reverse was the case for "no" answers

1 Details of the study will be given in later chapters

TABLE 1-2

FAMILY'S PREPAREDNESS TO FINANCE EDUCATION BY SOCIO-ECONOMIC STATUS OF FAMILY

Prepared to Finance Education		SES		
		HIGH	MEDIUM	LOW
Parents of students in grade 12	Yes	96.7	86.3	79.0
	No	3.3	13.7	21.0
	(N)	(153)	(500)	(438)
grade 10	Yes	95.2	91.5	79.8
	No	4.8	8.5	20.2
	(N)	(145)	(276)	(531)
grade 8	Yes	94.4	92.9	85.4
	No	5.6	7.1	14.6
	(N)	(108)	(212)	(405)

to the question. Hence, there is some class effect upon a family's preparedness to finance the education of children. However, the really surprising finding that Table 1-2 reveals is that so many lower class parents are in fact prepared to finance the education of their

children. The overwhelming majority of lower class parents replied yes rather than no to the question. Of lower class parents of students in grade twelve, 79% replied yes and only 21% replied no; of lower class parents of students in grade ten, 80% replied yes while only 20% replied no; and of lower class parents of students in grade eight, 85% replied that they were prepared to spend money to send their child to some form of post secondary education while only 15% replied that they were not prepared to do so.

Lest it be suspected that while lower class parents are prepared to spend some money they are not prepared to spend as much as upper class parents, the questionnaire also asked how much the parent was prepared to spend for a university and a community college education. Analysis of this question by social class revealed that, in general, higher SES parents were willing to spend slightly more. No major SES relationship was evident.

Furthermore, parents were asked "Have you and your spouse discussed the financial problems of (student's) education beyond high school?" Possible responses were often, sometimes and never. It could be argued that since lower class students are more likely to encounter financial problems the parents of lower class students should be expected to devote more discussion to such problems than parents of higher class students. When this question was cross-tabulated against social class, again no distinct SES effect

could be discerned.

Finally, parents were asked "Are you making or have you made any provision or plans such as insurance, savings, endowments etc. for financing higher education for (student)?" It would be expected that lower class parents would need to make such plans while upper class parents could afford to pay such costs out of current income. However, as table 1-3 reveals, it appears that upper class parents plan for the financial burden of higher education to a greater extent than do lower class parents. Forty-eight percent of higher SES parents of grade 12 students made financial plans while 30% of lower SES parents made such plans. Similarly, 53% of higher SES parents of grade 10 students made financial plans while only 36% of lower SES parents made such plans. In grade 8, the figures were 56% and 36% revealing a similar trend - higher SES parents make financial plans for the higher education of their children while lower class parents do so to a lesser extent.

The data presented above concerning money and educational plans are not presented to suggest that money does not matter at all but rather to point out that many parents, even lower class parents, are prepared to spend money to send their children to some form of post secondary education. In addition it is suspected that some of the answers given are somewhat unrealistic. In any case, the problem of educational attendance is not simply financial but also is to a certain extent motivational.

TABLE 1-3

FINANCIAL PLANNING FOR HIGHER EDUCATION BY SOCIO-ECONOMIC STATUS OF FAMILY

Plans		SES		
		HIGH	MEDIUM	LOW
Parents of grade 12 students	Yes	47.7	45.2	30.4
	No	52.3	54.8	69.6
	(N)	(155)	(299)	(447)
grade 10	Yes	53.1	43.9	35.5
	No	46.9	56.1	64.5
	(N)	(145)	(271)	(515)
grade 8	Yes	55.6	49.1	34.5
	No	44.4	50.9	65.5
	(N)	(108)	(218)	(420)

Conceptualizing the problem in this manner, of course, creates something of a moral dilemma -

If serious efforts are to be made to draft working class children for the long and grinding educational experience the post-modern economy requires, policies will have to be devised to deal with the acute and complex problems of motivation. The provision of opportunity through training schemes and the democratization of education may not be enough. The solution may require a conscious attack on a set of outmoded values, providing policy-makers with certain moral problems... There is no ready answer to the moral question, but we may have to accept further intrusions into the realm of the family through social policy. For there is also a moral problem in not providing working - and lower - class children with a chance to move up.
(Porter, 1968:17)

The dissertation does not skirt the moral problem but approaches it directly by first elaborating a theoretical framework for the explanation of educational and occupational aspirations which is grounded in the ideology of particular normative systems, by secondly, empirically examining the formation of educational and occupational aspirations, and finally by drawing out the implications of the analysis for public policy within the context of the theoretical framework presented earlier.

In this chapter it has been demonstrated that it is important to study aspirations of high school students for two very basic and significant reasons. First, they are salient variables in the process of educational and occupational attainment, and secondly, aspirations may be considered as key dependent variables in studying the motivational problem, which, apart from the financial problem, exists in Canadian society. The plan of succeeding chapters may now be given in greater detail.

In chapter two the relevant literature concerning educational and occupational aspirations is reviewed. Aspirations are found to be related to such social background characteristics as socio-economic status, peer influence, family influence, family dynamics, intelligence, program of study, self concept of ability, gender and ethnic and religious group membership.

In chapter three, based upon these relationships, a theoretical framework for the explanation of educational and occupational aspirations is suggested. Technology is viewed as generating an objective range of occupational positions while ideology is viewed as generating the motivation to fill these positions. When the two ideological dimensions of opportunity and condition are cross-classified, a typology of four ideal types of motivational societies emerges. Each of these types - communal, stratified, meritocracy and egalitarian society - are premised in a unique moral theory and are characterized by different relationships among social variables; in our case, by different relationships among social background characteristics and educational and occupational aspirations.

Chapter four initiates a comparative study of aspiration formation in Canada and in the United States. Based upon a review of the relevant literature, Canadian and American societies are placed on the typology developed in Chapter three and in accordance with the location of each, hypotheses are formed concerning the interrelationships of relevant variables. The Sewell, Haller and

Oblendorf (1970) path model is utilized to analyze data comparable to the original study which involved male high school seniors. In addition, females and earlier high school grades are introduced into the analysis. In Canada, the role of SES and the role of the family are found to be greater than in the United States where such performance variables like academic achievement show a greater relative effect. The role of the family was particularly strong for girls. The analysis of earlier school grades explained a greater proportion of the variance in educational and occupational aspirations due largely to the stronger effect of family influence.

Chapter five has been referred to as "tapping up the paradigm" (cf. Kuhn, 1962). The basic model elaborated by Sewell, Haller and Oblendorf (1970) is extended to encompass two additional intervening variables - self concept of ability and program of study. It was found that family influence, self concept of ability and program of study are the major direct influences upon educational and occupational aspirations. Family influence was found to be doubly important as it indirectly effects educational and occupational aspirations through program of study. In turn, family influence was found to be related more to the socio-economic status of the family than to performance variables like the academic achievement of the student.

Chapter six summarizes the major findings of the dissertation and expresses the hope that these will be useful to those interested in making social policy recommendations.

Throughout the dissertation "aspiration" and "expectation" are frequently used. In the study from which our data is drawn a distinction was made between the two and both were available for study. In the empirical chapters "expectations" were used as the dependent variables and this is clearly indicated where the operational definition of variables is discussed. However, in the theoretical, policy and general discussion, we often refer to "aspirations" as this accords with the more general nature of the discussion and is in conformity with usage in the literature.

CHAPTER II

REVIEW OF THE LITERATURE

The educational and occupational aspirations of youths is not a subject that has been neglected by sociological researchers. In a research bibliography Kuvlesky and Reynolds (1970) list over 400 published and unpublished works relating to the educational aspirations of youths. Early research in this area has been preoccupied with demonstrating bivariate relationships while later research has focussed on specifying the process of attitude formation through the use of sophisticated methodological techniques like path analysis (cf. Sewell, Haller, and Ohlendorf, 1970; Woelfel and Haller, 1971; Williams, 1972).

The relationship that has been most consistently documented by the empirical literature is that between socio-economic background and educational aspirations. All of the papers spawned by the 'Wisconsin Study' (Sewell, 1964; Sewell and Armer, 1966; Sewell and Shah, 1967; Sewell and Shah, 1968a; Sewell and Shah, 1968b; Sewell, Haller and Portes, 1969; Sewell, Haller and Ohlendorf, 1970; Sewell, 1971), have supported the proposition that the higher the socio-economic status of the student the greater his or her level of educational aspiration. Nor is this the only body of literature supporting this relationship. Canadian researchers have found the

same tendency (Breton, 1971; Forcese and Siemens, 1965; Breton, 1972; Breton and McDonald, 1967). As Breton expresses it "The existence of a relationship between socio-economic background and educational intentions is so strong and well established in research literature that any study which did not yield it would probably a priori be considered methodologically deficient". (1972:137)

Researchers have also documented a positive relationship between peer influence and education aspirations. (Alexander and Campbell, 1964; Pavalko and Bishop, 1966; Duncan, Haller and Portes, 1968; Haller and Butterworth, 1960). Research of this nature generally shows that when such factors as sex, intelligence and socio-economic status are controlled there is still a positive relationship between a student's educational plans and his or her friends' educational plans. From this relationship researchers usually infer that the friends' academic plans exert a causal influence upon the respondent to form similar plans. An alternative explanation may be that friendships are at least in part based upon shared educational aspirations or on residential patterns. This specific problem is mentioned here, just to illustrate a general feature of the literature on educational and occupational aspirations. While many empirical relationships have been established there is little that would serve as theory in the rigorous sense of the term. We will return to this problem later.

Another factor that has been shown to be related to the extent of a student's post-secondary educational aspirations is that of

family influences, and family dynamics. It has been demonstrated that the higher the aspirations that parents have for their children the higher the students' aspirations tend to be. (Sewell, 1968b; Breton, 1972; Williams, 1972; Bell, 1963; Kahl, 1965; Turner, 1962). Again; however, this is quite frequently taken to be a causal relationship rather than a correlational one. I am not suggesting that the latter is in fact the case, only that more evidence is necessary before causality is established. In addition to the transmission of aspirations from parents to siblings there is evidence that other variables such as family size, birth order and family decision-making dynamics are related to the formulation of educational aspirations. Family size and educational intentions appear to be negatively related even when socio-economic status is controlled; oldest and only children appear to have higher educational aspirations than other siblings although this may be partly because they tend to rank higher in mental ability; and student participation in family decisions is positively related to educational aspirations even when SES, mental ability and family size are controlled. (Breton, 1972).

Intelligence is another factor that has been shown to be positively and independently related to educational aspirations (Sewell, Haller and Straus, 1957; Pavalko, 1967; Sewell and Shah, 1967; Sewell, 1971; Breton, 1972). The results of these investigations generally support the proposition that while there is a low positive relationship between mental ability and SES, mental ability explains somewhat

more of the variance in educational aspirations than does socioeconomic status (Breton, 1972; Pavall and Bishop, 1966; Sewell, 1971). However, as Sewell (1971) notes this conclusion would tend to be conservative as it neglects the culture-bound bias in IQ tests favouring higher SES respondents. The mental ability test used in the study from which the data for this dissertation are drawn was selected in part to circumvent this problem. It is the IPAT 'culture fair' test prepared by Cattell and Cattell and is based upon symbolic manipulations rather than verbal reasoning which is known to be socially distributed. Unfortunately, the ability to conceptualize and manipulate symbols may also be socially transmitted, therefore, the test is probably not a pure measure of genetic potential. Indeed such a test may, in principle, be unattainable. However, to be conservative perhaps it would suffice to say that given our present level of technical sophistication in this area such a test has not yet been developed. Hence, it seems reasonable to suggest that the literature may have under-estimated the independent effects of SES due to its possible causal relations to other variables, mental ability for example, which influences educational and occupational aspirations. This may be called the fallacy of controlling for a causally related variable and will be discussed further when the influence of program upon educational aspirations is considered.

Most of the studies that document interrelationships between SES, mental ability and educational and occupational

aspirations also find that females have lower post-secondary educational and occupational desires than do males (Sewell and Shah, 1967; Sewell, 1971; Pavalko, 1967; Pavalko and Bishop, 1966 and while Preton, 1970; 1972, does not make a point of it his data also confirm this relationship).

...in all socio-economic and intelligence categories females are less likely than males to have planned on college or to have attended college or to have completed college. This trend reflects the normative differentiation of male and female roles in American society...there is still a prevalent norm that seems to lead many women to choose their household role as primary, and their occupational role as occasional, part-time and secondary. Unless women are strongly committed to a professional occupational as a full time career, they are less likely than men to be oriented toward higher education. (Sewell and Shah, 1967)

To a certain extent this finding may be interpreted to suggest that girls, more so than boys, can find their niche in the occupational world without considerable education whereas boys find higher educational credentials necessary to break into and to succeed in the occupational hierarchy (cf. Hall and McFarlane, 1963).

Of course, a few women do select a professional career (Rossi, 1965). Instead, women aspire to and attain those occupations, traditionally female dominated - secretaries, librarians, school teachers, waitresses, etc. It cannot be argued that these occupational patterns arise from any lack of ability on the part of females because it is known that females tend to achieve higher grades in high school than

do males. Instead the explanation likely lies in the historical and normative belief pattern or value orientation that maintains and fosters a conception of women as wives, mothers and housewives. In any case, the finding that capable, intelligent women are aspiring to and attaining lower level, in many cases menial, occupational roles further documents the proposition that the educational and economic systems are operating with considerable slack.

Breton (1970) has shown that program is an important determinant of post high school educational aspirations. Indeed, it is not surprising that this should be so since this is precisely the intent of such programs. They were established to stream and guide students to an appropriate selection of post high school educational training and/or occupational selection. Appropriate in the sense of being consistent with a student's demonstrated potential for achievement and stated interest. Therefore, a student's high school program must be considered as an intervening variable between his social origins and his educational and occupational aspirations. Students in programs other than the university entrance stream must not be excluded from the analysis. Breton (1970) while recognizing this important fundamental point, makes an equally fundamental blunder. His main conclusion is that program explains more of the variance in educational aspirations than does either mental ability or SES. At the same time Breton realizes that program and SES are themselves interrelated. This causal relationship invalidates the technique of calculating effect parameters since

part of the effect of SES is felt through program. Again it appears that a researcher is guilty of committing the fallacy of controlling for a causally related variable. These comments will be elaborated upon in Chapter five where program of study is introduced into a causal model to further specify the process of aspiration formation.

Another intervening variable in the process of aspiration formation is self concept. The particular aspect of self concept that we are concerned with here is a student's self concept of ability. Following the symbolic interactionist school of behavior we accept the proposition that a child is not born human but becomes a social being through interaction with others and through participation in social life. Mead's (1934) concepts of the "I" and the "me" and Cooley's (1967) concept of "the looking glass self" have helped to indicate how the impact of others influences the development of a "self". Literature dealing with the internalization of norms also supports the idea that society implants something in the developing child. W. I. Thomas' "definition of the situation" further illuminates the socialization process. Situations need not be real but merely perceived as being real by ego to have an affect upon ego's behavior. Without going into this body of literature at the present time suffice to say that there is a theoretical framework explaining the development of a self concept in terms of a child's interaction with parents', siblings, peers, teachers and the like. The expectations held for the child, the treatment given the child, all help to mould a particular concept of self and self concept of ability.

There is empirical evidence (Brookover, 1962) that a student's self concept of ability, in turn, plays a central role in the process of aspiration formation. Brookover's (1962) research demonstrates that even when mental ability is controlled self concept of ability is associated with academic achievement which itself has been shown to be central to the process (Sewell, Haller and Ohlendorf, 1970; Woolfel and Haller, 1971; Williams, 1972). The implications of this body of research for the purpose at hand is explored further in Chapter five where self concept of ability is accomodated within an extended path model.

The literature indicates that ethni-religious membership can be added to the list of factors influencing educational and occupational aspirations and attainments. Data gathered by the Carnegie Study in Ontario and used by the Royal Commission on Bilingualism and Biculturalism shows that Franco-Ontarian students have a drastically lower high school retention rate than students who speak English or another language at home (Pike, 1970). Of all the students studied in grade IX, only 8.8% of the French students had reached grade XIII four years later compared with 23.7% of the English students and 29.8% of the students who spoke some other language at home. Although the French students, more than the English students, tended to be from rural areas, from large families and from lower SES homes, the Bi and Bi Commissioners felt that these factors only in part accounted for the high attrition rates of French students. In

addition, they felt that these students faced distinct cultural and linguistic problems peculiar to their status as members in a French language minority group. At one time in Ontario if French students wanted to carry on their education in their own language they had to pay fees to continue in a French milieu.

King (1968) also using the Carnegie data has shown that high school retention rates were highest for Jewish students and lowest for French students. In line with this Rosen (1959) has found that achievement motivation, achievement values and aspirations tend to be more characteristic of Jews, Greeks and white Protestants than of Italians, French-Canadians and Negroes even when social class is controlled.

In addition to individual level variables like those previously discussed there have been numerous studies demonstrating relationships between educational and occupational aspirations and such contextual variables as urbanization, school, classroom and neighbourhood factors. Grigg and Middleton (1960), Elder (1963), Sewell (1964) and Breton (1972) have found that size of community of residence and educational aspirations were significantly and positively related. The more urbanized the community the greater the likelihood that students would have aspirations to attend university or some other post-secondary educational institution. The usual explanation offered for this finding is that concomitant with rural or small town living there is a subculture that stresses the concrete and the

practical as over against the abstract and the theoretical. This subculture, this pattern of beliefs and values, it is held, is detrimental to the formation of higher educational aspirations. Although a rural, small town environment tends to be associated with a lower class status, these studies find that even when class is controlled urbanization makes a difference in educational aspirations and particularly for those of boys. In addition, it has been suggested that the propinquity of educational institutions or the visibility of educational opportunities for those students in more urbanized areas is related to aspiration formation. Nevertheless, the effect seems to be due to the rural, small town influence per se rather than merely its association with the socio-economic milieu.

There is some debate as to whether or not the class composition of a school or neighbourhood itself rather than the SES of an individual student is associated with educational aspirations. With this variable it is expected that the lower class student in an upper class school or neighbourhood would have higher educational aspirations than the lower class student in a lower class school or neighbourhood. Conversely, the high SES student in a low SES school or neighbourhood should have lower aspirations than the high SES student in a high SES school or neighbourhood. Here the literature is ambiguous. While some researchers (Michael, 1961; Turner, 1964; Boyle, 1966a; Breton, 1972) have found that the socio-economic composition of a school continues to be associated with educational aspirations even after individual

SES is controlled, others (McDill, 1967; Sewell and Armer, 1966) have disputed this finding. To bring the debate full circle the contradictory findings have been disputed (Turner, 1966; Michael, 1966; Boyle, 1966b). The contention that educational facilities make little difference to student attainments (Coleman, 1966; McDill, 1969; Jencks, 1972) has proved to be equally debatable (Bowles and Levin, 1968; Bowles, 1968). It appears that the contextual relationships are less well established than the individual level relationships discussed previously.

Much of the research previously discussed has been accomplished using bivariate and trivariate cross tabulation. In addition to this type of analysis there is a growing body of work utilizing the sophisticated multivariate technique of path analysis to explain educational and occupational aspirations. (Sewell, Haller and Ohlendorf, 1970; Woelfel and Haller, 1971; Williams, 1972). Sewell, Haller and Ohlendorf (1970) used data gathered in 1959 and subsequently followed-up in 1964-65 to produce a sample of 4388 Wisconsin high school male students. Their model (originally formulated to explain occupational attainment but adapted here to treat educational and occupational aspirations as the dependent variables) specifies mental ability and socio-economic status as background variables and traces their influence through academic achievement and significant others' influence as intervening variables on educational and occupational aspirations.

DIAGRAM 2-1

Path Coefficients for Antecedents of Educational and Occupational Aspirations per Wisconsin Model

where X1 = mental ability
X2 = SES
X3 = Academic performance

X4 = Significant others' influence
X5 = Level of educational aspiration
X6 = Level of occupational aspiration

(Source: Sewell, Haller & Ohlendorf, 1970)

Significant findings were that academic achievement and significant others' influence were strongly related to educational and occupational aspirations and that these variables served as the mechanisms of mediation between mental ability and SES and educational and occupational aspirations. The original model was fairly powerful as it explained 40% of the variance in occupational attainment and

57% of the variance in educational attainment.

Woelfel and Haller (1971) gathered data from 100 high school seniors - an entire senior class from a small Wisconsin city high school. Significant others' influence was operationalized differently than in the Sewell, Haller and Ohlendorf study. Instead of a weighted combination of self reported parental encouragement, teacher encouragement and friends' college plans Woelfel and Haller identified significant others and surveyed them to attain their mean educational and occupational expectations. The response rate from significant others was only 68%.

Two other pertinent points concerning the Woelfel and Haller (1971) study are: first, that some attempt at theory construction was initiated and secondly, the data were not analyzed by sex. Concerning the first point while the effort at theory construction is laudable, there are some very large unresolved questions. Just to mention one -

It (the theory) assumes that others are significant in direct proportions to the amount of information they convey to an ego about the categories he uses to define objects and self... (Woelfel and Haller, 1971:76)

The question arises "Can provision of information legitimately be equated with causal influence?" Concerning the second point the data may not be analyzed by sex because of the restricted data base. In any case the model specified by Woelfel and Haller utilizes the

same variables but in a somewhat different manner due to an effort to accomodate feedback within the model.

DIAGRAM-2-2

Schematic Representation of a Model for the Formation of Educational and Occupational Aspirations. Strengths of the Various Causal Paths are Estimated by Beta Coefficients

where: X1 = Academic performance X5 = Significant others' mean educational expectations
 X2 = Mental ability X6 = Significant others' mean occupational expectations
 X3 = Educational aspirations
 X4 = Occupational aspirations X7 = SES.

(SOURCE: Woelfel and Haller, 1971)

While the data base is different, while some variables are operationalized differently, while the causal model is different,

Woelfel and Haller's conclusions are essentially in agreement with those of Sewell, Haller and Ohlendorf. Academic achievement and significant others' influence are strongly related to educational and occupational aspirations and they represent the mechanisms of mediation for such other factors as mental ability, and SES. The model explains 64% of the variance in educational aspirations and 59% of the variance in occupational aspirations.

Williams (1972) used the Carnegie data on Ontario students and employed a 5,000 random sample of grade 12 students as his data base. Only those students in academic programs (3687) were included in the analysis thereby severely limiting the generalizability of the results. The analysis, however, was performed while controlling for sex. The variables used and the basic causal model specified are presented in diagram 2-3 on the next page.

The results tend to confirm those mentioned previously with the useful addition that the priority of influence among certain significant others seems to be (1) parents (2) teachers and (3) friends. Williams notes that his model explains sixty-eight percent of the variance in grade 10 aspirations of males and sixty-seven percent of the variance in grade 10 aspirations of females. The model explains 81% of the grade 12 aspirations of males and 77% of the grade 12 aspirations of females.

This dissertation follows the lead of the research previously discussed in attempting to specify the process of aspiration

DIAGRAM 2-3

Causal Ordering of the Variables

(SOURCE: Williams, 1972)

formation through the construction of causal models. In addition to mopping up the paradigm in this manner, there are a number of other problems mentioned in the literature toward which we hope to make a contribution. First, we have suggested that the research on aspirations tends to be somewhat of the abstract empiricist variety - aspirations are frequently related to some social background characteristic but there is no attempt to deduce the empirical regularity under consideration from more general higher order propositions. As Haller and Portes phrase the issue "Are there identifiable states of stratification systems which affect the applicability of present or future status attainment paradigms"

(Haller and Portes, 1973:77). Chapter three in the dissertation elaborates a theoretical framework which links various moral theories to relationships among social variables and thus comes to grip with the problem of integrating the many propositions documented by research in the area. Secondly, the applicability of status attainment paradigms which include aspirations need to be tested on age groups other than high school seniors (Sewell, Haller and Ohlendorf, 1970: 1025). As Haller and Portes put it "Are there discernable points in the life cycle at which persons normally experience substantial changes in the effects of key status attainment variables" (Haller and Portes, 1973:77) Chapters four and five in this dissertation apply various models of aspiration to younger students, that is, to earlier school grades. Thirdly, there is the question of the applicability of such models to women (Sewell, Haller and Ohlendorf, 1970: 1025; Haller and Portes, 1973:81). While the dissertation does not specifically set out to establish unique models for women, it does apply the models developed to high school girls and does indicate significant differences in the process of aspiration formation between girls and boys. Fourthly, as Sewell, Haller and Ohlendorf (1970:1025) note, their model needs to be tested in other societies. Chapter four attempts such a cross-national comparison. Fifthly, and finally, there is the question of policy implications. Chapter six draws out the implications of the theory and the analysis for Canadian social policy.

CHAPTER III

A MACRO THEORY OF ASPIRATION FORMATION UNDER DIFFERENT NORMATIVE SYSTEMS

In the previous chapter it was demonstrated through a review of the literature that educational and occupational aspirations are related to a number of social variables. Relationships have been discovered between educational and occupational aspirations and such variables as socio-economic status, ethnicity, religion, urban-rural residence, gender, mental ability, academic achievement, school program, self concept of ability, parents' aspirations and friends' aspirations. However, while those relationships have been established, and these hypotheses verified, there has been no explicit attempt to generate a theory or theoretical framework encompassing educational and occupational aspirations. In other words, there has been no attempt to produce a series of higher order propositions from which the established empirical regularities concerning educational and occupational aspirations can be deduced. Some theoretical specification has, however, been implicit in the sociological treatment of learning theory or socialization and internalization theory. Therefore, the purpose of this chapter is to continue to articulate an explicit theory, or at least a theoretical framework, which locates the formation of educational and occupational aspirations among the more general social processes pertaining to industrial societies.

The theory developed here is one that views technology and ideology as operating basically in a demand/supply manner. That is, technology gives rise to an objective division of labour, an objective range of occupational positions of varying levels of complexity and requiring various cognitive or physical skills for their performance. Given this range of positions there is a need to differentially motivate the population. In this regard the ideology learned by individuals serves a supply function by creating in individuals the subjective dispositions or the motivation to attain the skills deemed proper by a specific society and by producing the motivation to perform at a particular occupational level. Hence, educational and occupational aspirations are the subjective motivational states corresponding to the objective distribution of occupational positions. Furthermore, they are generated not only in accordance with the technological structure but also in accordance with the ideological value patterns of a particular society. Two major dimensions of ideological and structural focus in societies are the degree of equality of condition or, in other words, the extent of material inequalities within the society, and the degree of equality of opportunity in the society. When these two ideological dimensions are cross classified, a typology of four ideal types of motivational societies is produced. Communal societies with few material inequalities among members and low equality of opportunity maintain an ascriptive basis of occupational role incumbency.

Stratified societies with substantial material inequalities and low

equality of opportunity maintain a system of motivation which on the one hand holds out the material inequalities as inducements, as rewards, and, on the other hand, prevents their acquisition on universalistic grounds by adhering to a particularistic - ascriptive system of attainment. Meritocracies with widespread material inequalities and high equality of opportunity also maintain a motivational system where inequalities are held out as inducements to achieve but where such achievement is based upon an individual's genetic ability rather than his membership in certain social groups. Egalitarian society with substantial equality of condition and a high degree of equality of opportunity entails a system of occupational attainment based upon ability, like meritocracy; however, the inducement to achieve is not material rewards but is a common duty to the collectivity. Underlying each of these societies is a unique moral theory and a unique pattern of relationships among social variables. These are discussed further in the following pages. The essential point to grasp at present is that in stratified and communal societies educational and occupational aspirations will be primarily related to group membership characteristics like family SES background, ethnic group membership, religious affiliation etc., while in egalitarian society and meritocracy, aspirations will be mainly related to performance measures like academic achievement and mental ability. However, there are distinct moral theories differentiating egalitarian society and meritocracy. This theory will be elaborated

upon in the discussion that follows.

Technology and the Occupational Distribution

While the Canadian Census of 1871 listed 131 separate occupations, the 1961 Census provides for over 300 distinct occupations. The discrepancy between these figures illustrates the extent to which the occupational distribution has become differentiated with industrialization. Similarly, any dictionary of occupation titles will indicate the extent of structural differentiation. During industrialization, a number of separate processes occur. First, some occupations disappear or lose predominance - e.g. blacksmiths, horse-drawn carriage makers, etc. Secondly, new occupations appear - e.g. computer programmers, systems analysts, computer operators etc. Thirdly, the process of structural differentiation takes place where "one social role or organization...differentiates into two or more roles or organizations which function more effectively in the new historical circumstances. The new social units are structurally distinct from each other, but taken together are functionally equivalent to the original unit" (Smelser, 1959:2). An example of the impact of structural differentiation upon the occupational structure is the appearance of dental assistants and hygienists as auxiliaries to the role of the dentist. Whereas previously all the functions were performed by the dentist, in modern society specialization in occupational tasks is prevalent. This specialization results in a more differentiated range of occupational positions or, in broader

terms, a more differentiated division of labour in society.

Despite some dispute over the material versus the ideational component of the term technology, we shall use the term in conformity with the "...general recognition that technology involves the application of knowledge and beliefs in carrying out tasks that includes the artifacts developed to reduce the amount of labour or to accomplish what cannot be achieved by manpower alone" (Gibbs and Martin, 1962: 672). It is my contention that it is the level of technological development that is the prime, but not the only, determinant of the occupational distribution or the division of labour. In the example discussed above concerning the dentist and the dental assistant, such structural differentiation would not have been probable had not someone developed the saliva suction technique and a mass of drills, filling substances and other refinements that take two people rather than one to operate successfully. Before delving into the relationship between technology and the occupational distribution in greater detail, it is necessary to review some basic distinctions.

In considering the division of labor Marx distinguished between the division of labor in general and the division of labor in particular and the division of labor in the workshop (Marx, 1967: 351). The division of labor in general refers to the major productive divisions - i.e. agriculture, industry, commerce, service, etc. As Jordan (1971:48) notes, this division is common to diverse economic systems and arises naturally within a family, tribe or clan from physiological differences such as age and sex.

There is no doubt that as societies undergo industrialization the division of labor in general is altered and that technology plays a major part in this alteration. Prior to industrialization a large proportion of the labor force is engaged in agricultural pursuits. However, with the development of new agricultural technology, with mechanization, and with new agricultural enclosure laws that created landless labour, workers are freed from the land. At the same time, these workers are needed in another sector of the economy, the industrial sector, which expands with mechanization. In Canada, for example, the Census of 1871 indicates that 55% of the labor force was classified as agricultural. In 1961 the corresponding percentage was 10% (Kalback and McVey, 1971:239). Furthermore, these new positions in the expanded industrial sector require, it is believed, a greater amount of training and/or education. Increasingly sophisticated technology requires increasingly sophisticated human resources, although increasingly sophisticated technology may require decreased numbers.

In addition to this shift in the social division of labour from an agricultural economy to an industrial economy with advances in technology, it may be the case that the next stage of societal evolution or development in this regard is toward a service oriented economic system. As Bell (1968:153) points out, the vast majority of countries in the world are still at the agricultural stage:

The United States today is the only nation in the world in which the service sector accounts for more than half the total employment and more than half the gross national product. It is the first service economy, the first nation in which the major portion of the population is engaged neither in agrarian nor in industrial pursuits. It is estimated that today about 55 percent of the labor force is engaged in services; by 1975 that figure will rise to 60 percent. (Bell, 1968:153)

I would argue that it is the level of technological sophistication and specialization that is primarily responsible for these gross changes in the division of labor in general.

The division of labor in particular refers to a further development within each of the major productive divisions. This division is even less natural than the division of labor in general because it is determined by the method of production applied in each sector. Or in other words, technology largely determines the occupational distribution or the division of labor within the major productive divisions. An example should suffice to illustrate the point. In farming, before the advent of combines, a swather cut the grain and men stooked the bundles to dry. Thus the technology necessitated that men would operate the swather and men would stook the grain. When combines were developed the manual labor position was eliminated. Similarly, in the transportation sector of the economy, old railway steam engines required firemen to fire the boilers. However, with the rise of the diesel engine this position was eliminated. The engineers job, nevertheless, became more complicated due to the new technology.

The division of labor in the workshop refers to the minute division and subdivision of labor in the factory and in manufacturing into highly specialized, routine, narrow tasks. The assembly line (a technological development) illustrates how a worker performs highly specialized tasks, perhaps just tightening one set of bolts, while others perform other mundane activities associated with automobile production. Similarly, Adam Smith's detailed description of the making of a pin illustrates the extent of industrial specialization. The general point is that here again technology plays a major role in determining the division of labor. Thus technology influences the division of labor in general, the division of labor in particular and the division of labor in the workshop. To step back from these distinctions, let us consider how the process, in general, operates.

Two quotes from Marx will explicate the matter:

(1) Social relations are closely bound up with productive forces. In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations. The handmill gives you society with the feudal lord; the steam-mill society with the industrial capitalist.
(Marx, 1967;55)

Similarly, in The German Ideology Marx indicates that the material base of society, that is, technology and the accompanying skills together with the raw materials and resources, determine the division of labor:

How far the productive forces of a nation are developed is shown most manifestly by the degree to which the division of labor has been carried.

Each new productive force...brings about a further division of labor. (Marx, 1963:8)

One should be perfectly clear that while support can be found in Marx for the proposition that technology determines the division of labor (and by determine is meant a major determinant of) we wish no part of the more rigid interpretation of historical materialism as a technological theory of history under which it is held that technology or the productive forces determine all social relations. Here we are only seeking to establish the proposition that the material and ideational base of society that we refer to as technology plays a major role in establishing the occupational distribution or the division of labor.

H. B. Acton agrees that Marx may be interpreted in this manner and furthermore, that this interpretation is basically correct:

Marx is quite right in saying that means of production determine the organization of labor. A solitary man can use a spade or hoe, for example, whereas it takes several men to handle a trawler. Different types of tool or machine determine different job relationships. Some tools can be used by one man or woman. Some machines require a whole crew or team to be in attendance. (H. B. Acton, 1967:54-55)

In fact, it may be the case that Marx has incorrectly judged in one sense the effect that mechanization has upon a society. Although he recognized that on one hand industrialization increased the demand for labour and on the other increased the supply of labour, he over-emphasized this latter process. We now know that industrialization

ability and his performance as measured by his academic achievement.

What variables would you not expect to be related to aspirations or only weakly related to aspirations? In general, these would be variables related to the transmission of ascribed characteristics. One would not expect that the structural location of the parents in the occupational hierarchy, that is, SES, would be related to aspirations. It is remembered that parents are not allowed to pass along the social advantages earned by one generation. Each generation must earn its own success. Hence, SES would be only weakly related to aspirations. Similarly, sex as an ascribed characteristic would be unrelated to aspirations as would such other variables as religion, ethnicity, language, etc. Any advantages or disadvantages entrenched in socio-cultural groups would not be passed along to the students in a complete meritocracy. Neither the family nor any other social group would be allowed to transmit any social advantage either material or non-material to the new aspirants.

Egalitarian Society

Similar to communal society, egalitarian society has essential equality in the distribution of material goods. The only inequalities that are justifiable in egalitarian society are those that stem from the authority structure in the sense of being resources necessary to accomplish a particular task. In other words, while inequalities in resources are necessary to accommodate the division of labor

of +.85 between the division of labor as measured by industrial diversification and technological development as measured by energy consumption per capita. Similarly, Sawyer (1967:162) finds various indicators of the division of labor in general to be associated with per capita GNP. The agricultural population as a percentage of the total population, agricultural workers as a percentage of the labor force and agricultural production as a percentage of total GNP all correlate strongly (negatively) with per capita GNP. The zero order correlations are -.84, -.79, -.74 respectively. On the other hand, industrial workers as a percentage of the total population correlates highly (+.84) with per capita GNP. The figures support the position taken earlier that the level of technological development is related to the division of labor in general. Finally Olsen (1968:705) developed a somewhat different labor diversity index than that of Gibbs and Martin and correlated it with both energy consumption per capita and GNP per capita. The results, correlation coefficients of .83 for both relationships, reveal again that the division of labor as measured by energy consumption and GNP per capita are closely related. As the discussion earlier showed, this relationship is a causal one with technology being largely responsible for occupational differentiation.

The Occupational Distribution as Objective
Reality and Aspirations as Subjective Reality

The level of technological development in a society generates a range of occupational positions encompassing varying levels of cognitive and physical skills. Frequently these occupations are classified into

socioeconomic categories such as the following: professional, technical, managerial, clerical, sales, skilled, semi-skilled and unskilled. As can be seen from this classification, these positions range from those deemed to require little skill or training to those deemed to require many years of education for their performance. As societies move from agrarian to industrial to post-industrial, new positions are created which require even greater training and/or education. In addition, existing occupations are upgraded. Although it is hazardous to refer to those positions at the more complex end of the occupational distribution as 'functionally more important', nevertheless, they do require greater ability for their performance, greater training and/or education, and they do usually require access to, or control of, considerable resources. This position must be clearly distinguished from the functional theory of stratification which maintains that certain positions are functionally more important than others and, given a scarcity of talent, differential rewards are necessary as inducements to motivate individuals to attain these positions. The position outlined above, on the other hand, does not assert that certain positions are functionally more important and also does not assert that inequalities, particularly material inequalities, are necessary to motivate actors to attain more complicated occupational positions. The viewpoint being developed here only seeks to make three points. First, that the level of technological development is a major determinant of the occupational distribution. Secondly, that a salient characteristic of this occupational distribution is its differentiation in terms of complexity.

of tasks such that some occupations entail or require more education and/or training for their performance than others. Furthermore, these occupations involve the use of, or control of, considerable societal resources in their performance. Thirdly, that as societies modernize, the occupational distribution becomes more complex, more specialized and more technical, thus necessitating greater preparation for the performance of an occupational role.

Given this range of differentiated positions as the objective reality, societies are faced with the problem of role allocation or role recruitment. In free societies this means that people must be differentially motivated to perform at certain levels of the occupational hierarchy. People are not born with a desire to become a doctor or a bank teller, a butcher or an accountant. They must acquire these predispositions through social life. In short, they are socialized into their occupational or educational aspirations. This socialization is not random or haphazard. It is patterned and, when studied, certain regularities can be discerned. However, the patterns, the social variables involved, vary with the normative structure of the society. Hence, it is necessary to consider a typology of societies on two salient ideological dimensions. In general, it is the ideology or the value structure of a particular society that determines the motivation or the supply of individuals into the various occupational positions. Two major dimensions of the ideological value pattern are reflected by the concern for the equality of

opportunity within a society and the equality of condition within a society. Cross classification of these two dimensions (McRoberts, 1971; Gilbert and McRoberts, 1973) yields four ideal types of societies having unique ideological value patterns and thus having unique basis for the development of educational and occupational aspirations.

DIAGRAM 3-1

THE IDEOLOGICAL SUPPLY OF MOTIVATION

		Equality of Opportunity	
		HIGH	LOW
Inequality of Condition (Rewards)	Minimal	Egalitarian	Communal
	Maximal	Meritocracy	Stratified

Equality of opportunity refers to a universalism - achievement value orientation. Individuals have equal chances to become unequal. That is, all start off the race on the same basis. Their eventual status, however, depends upon their performance along the way. Furthermore,

the criteria for success are applied universally to all participants as opposed to a particularistic application of standards. Equality of condition refers to the allocation of rewards in a society. Material and social rewards may be distributed differentially throughout the population, on the basis of some moral theory, which would be reflected in the nature and the types of social variables involved in the process of educational and occupational aspiration formation, or these rewards may be more or less distributed evenly among all members of the society. Again, this distribution would be based on an alternative moral theory and would be reflected in a different patterning of social variables in the formation of educational and occupational aspirations. When these two fundamental ideological dimensions are cross classified, we produce a typology of four ideal types of societies. Low equality of opportunity and the presence of equality of condition or rewards characterizes communal society. Stratified society is characterized by low equality of opportunity and by the existence of widespread social and material inequalities. It is in this cell that most modern societies would be placed. Many individuals in stratified societies share the opinion that it would be desirable to move the society to the next cell, to the meritocracy stage where equality of opportunity is high, thus determining the distribution of existing social and material inequalities. The fourth cell represents egalitarian society which is characterized by high equality of opportunity but with few social or material inequalities in the sense of rewards for performance. The remainder of the chapter elaborates upon these ideal types by describing the various moral theories underlying each society,

by showing how these moral theories are actualized by the relationships between certain social variables and finally, by explaining the relationships between certain social variables and educational and occupational aspirations. Since present industrial societies closely approximate the stratified model, it will be necessary to treat this type in somewhat greater detail.

Before explicating these various model societies, it will help to revive the functional theory of stratification briefly to further clarify the approach being taken in this paper. The functional theory states that social inequalities are both functional and necessary to ensure that occupational positions are filled. It is held here that social inequalities are functional in the sense that they can provide one of the bases of motivation to achieve the more complex, technical occupational positions. If we socialize people to strive for material or social differentials, then the provision of these rewards in connection with the occupational hierarchy will ensure that positions are filled. In this sense, the inequalities are functional. However, as numerous critics of the functional theory point out, there are alternative motivational schemes and some of these need not entail differential material rewarding. Therefore, under different normative systems material inequalities need not be necessary. Similarly, we wish to point out that different ideological foundations, different value patterns, different normative orders, different moral theories will

give rise to a different ordering of social variables (i.e. different relationships between certain social variables and educational and occupational aspirations). This conceptualization will aid us in understanding the bases for the formation of educational and occupational aspirations in present industrial societies.

Communal Society

Communal society is characterized by a near egalitarian distribution of material inequalities. Hunting and gathering societies may fit into this cell of our cross-classification of salient ideological dimensions. The hunting and gathering society is the most primitive of all human societies with respect to the level of technological development and the complexity of social organization. "If any single feature of the life of hunting and gathering societies has impressed itself upon observers, it is the relative equality of the members" (Lenski, 1966:102) This equality can be illustrated by considering the case of the Andaman Islanders. It is reported that the distribution of goods approaches an approximation of communism (Radcliffe-Brown, 1948:43). Land is communally owned, food is privately owned but there is a normative expectation of sharing, and other private property is frequently gifted with social honor accruing to the generous or benevolent giftor. Hence, relative equality of material possessions results. This equality is understandable when related to other common features of hunting and gathering societies. In the first place, these societies are subsistence economies. There is very little wealth, and thus very little material inequalities eligible for any differential

distribution. In the second place, hunting and gathering societies tend to be nomadic or semi-nomadic. Since these bands tend to follow the food supply acquisitive behavior or the accumulation of possessions is minimized. In the third place, the institution of private property has not been firmly entrenched or developed in these societies, thereby reducing the pressure on the distributive system (Lenski, 1966:179; 1970:96; Parsons, 1966:44). In short:

The rudimentary nature of the political system and the primitive nature of the technological system contribute to yet another distinctive characteristic of modern hunting and gathering societies: minimal inequality in power and privilege. (Lenski, 1970:179)

While we concur with Lenski about the distribution of material inequalities we cannot accept his position concerning our other ideological dimension - equality of opportunity. Lenski would have us believe that there are "almost no organizational or institutional barriers (to) block the rise of talented individuals" (1970:180). Therefore, the rate of intergenerational mobility in hunting and gathering societies is held to be high (Lenski, 1966:110). There are no barriers to mobility, according to Lenski, because (1) there are no mechanisms or structures to facilitate the transmission of advantages or disadvantages to succeeding generations (2) there are no "...hereditary roles with established prerogatives which accrue to the incumbent regardless of ability" (1966:109) and (3) hunting and gathering societies are too small and relatively undifferentiated to develop class-related subcultures (1966:110).

However, Lenski seems to overlook, or at least de-emphasizes, the role of the family in the transmission of occupational positions. In many cases such positions are inherited. For example, concerning the headman, it has been noted that "Among the sample of hunting and gathering societies in the Ethnographic Atlas, 54 percent had provision for the hereditary transmission of the office..." (Lenski, 1970:180). Similarly, it is commonly accepted that a rudimentary division of labor is based upon ascribed characteristics such as age and sex. Furthermore, in hunting and gathering societies, the family, that is the kinship structure, is the only significant form of economic organization and within this unit an individual frequently performs specific technological-economic functions by virtue of his or her particular kinship status (Parsons, 1966:38). All this suggests that hunting and gathering societies, in particular, and communal societies, in general, place considerable reliance upon the kinship structure and if one wants to place these societies in terms of their system of occupational role allocation on the achievement - ascription pattern variable dichotomy, the appropriate location is toward the ascriptive end of the dichotomy. In any case, even if hunting and gathering societies do not fit into this cell, the ideal type of communal society involves essential equality of material rewards and low equality of opportunity.

The question may arise in connection with communal societies and in connection with egalitarian societies "If there is little

difference in material rewards, what is there to be mobile about?"

The answer is that although there is little differential material rewarding, there is still a division of labor involving resource differences and differences in ability. Accordingly, individuals can be mobile in the sense of developing whatever inherent abilities they have and in accordance with this development in performing at a particular occupational level. These levels are not, however, differentially rewarded with material goods.

The moral theory which characterizes communal society is as follows: first, there is the principle, similar to the Parsonian collectivity - self pattern variable, corresponding to the equality of condition ideological dimension, which holds that all individuals in the society are equally worthy of sharing in the material goods or produce of the society regardless of their status viz-a-viz the productive system. In other words, regardless of an individual's genetic or socially developed potential he or she shares equally in the material goods and whatever surplus may be produced.

Resources may be allocated to different individuals in connection with their particular location in the productive process but there is no differential rewarding. In fact, differential rewarding as a motivational device is unnecessary because social roles, including occupational roles, are filled not by achievement but by ascription. Loyalty under this normative system is to the collectivity, to the tribe or band. And there is good reason that this loyalty, this

solidarity, should exist - members are functionally dependent upon each other to work together to produce their means of subsistence. If one or two members of the band fail at their duty the whole band suffers correspondingly. Hence, due to the subsistence nature of the economic organization, a normative system arises which conceives of each member of the society as part of a functionally interdependent whole equally worthy of sharing in the artifacts and production of that society.

The second moral principle corresponds to our other ideological dimension - equality of opportunity. In this case the principle of the primacy of the kinship system achieves ascendancy over the universalistic - achievement orientation. Under this normative system it is appropriate that social roles are filled by hereditary transmission rather than achieved. The collectivity - self dimension can be brought in again to demonstrate that in this case the collectivity orientation again takes precedence, only now the collectivity is the kinship structure, the family either nuclear or extended, rather than the whole band. The moral principle involved here is one concerning the development of individual potential and ability. Instead of being developed freely and universally it is constrained by the primacy of the family. Functions are performed in relation to status within the family.

Normally at this juncture of the analysis the relationships between social variables would be outlined, particularly the relationships between occupational and educational aspirations and

other social variables. However, in the case of communal societies which are at a low level of technological development there is not much of an objective reality in terms of the occupational distribution or the division of labor. In addition, technical-economic roles are filled by ascription and the necessity for differential aspirations arises mainly under a system of achievement. Hence, this aspect of the analysis will be neglected here but will arise later when the other ideal types of societies are contrasted with communal society.

Meritocracy

The opposite of communal society under our typology is meritocratic society which is characterized, first, by extreme differences in the distribution of material goods in contradistinction to the egalitarian distribution of communal society, and secondly, by a system of institutionalized achievement as opposed to the ascriptive system of occupational role allocation in communal society. In other words, in terms of our two ideological dimensions, equality of condition and equality of opportunity, a meritocratic normative structure entails inequalities in the various types of social rewards but with equal opportunity for individuals to attain these rewards.

Rewards available for distribution are frequently classified, following Weber, as economic, political or social, or more concretely, as wealth, power or prestige. It is a moot point whether or not the distribution of social inequalities would be greater or less under a meritocratic social structure than under a stratified system. Michael

Young, in The Rise of the Meritocracy, suggests that the distribution of income would become ~~more~~ unequal because of the accompanying tendency toward large scale bureaucratic organization. (Young, 1961:152-153). In any case, since we have no true meritocracies in existence, and since the distribution of material inequalities under our typology for meritocracies and for stratified societies is indicated as similar, the distribution of rewards under meritocracies will be outlined and illustrated with reference to stratified societies.

First, we can observe as did Dr. Andre Raynauld (1973), Chairman of the Economic Council of Canada, that income, or the flow or incidence aspect of wealth as Duncan (1968:688) point out, is unequally distributed in most developed countries. Raynauld cites an Economic Council of Canada study by Maslove (1972) showing that in Canada the bottom fifth of family income units received only 4.3% of the total income while the top fifth received 45% of the total income. Similarly, published data in Podoluk (1968:277) confirm the general point that the top fifth of income earners receive the bulk of the total income. Nor is this phenomenon unique to Canada. Similar disparities exist in the United States (Kolko, 1962:14; Kuznets, 1952; Jencks, 1972: 210-213). Looking at the same problem, the extent of income inequalities in various societies, Gini coefficients reveal that if one examines the distribution of wealth or other assets a similar case is revealed - i.e. wealth is concentrated in the hands of the relatively few. Even Seymour Martin Lipset concedes this

point: "The United States, like all other nations, has an enormous concentration of personal wealth in the hands of relatively few individuals" (Lipset, 1967:370).

Likewise it is no secret that there is a concentration of economic power in modern societies. An economic elite from relatively homogeneous social backgrounds in terms of social class, religion, ethnicity and education control, through interlocking directorates, a small number of dominant corporations (Porter, 1965). Decision making in these corporations is not democratic but is lodged in the corporate hierarchy - in the technostructure to use Galbraith's (1967) term or in the managerial sphere as Burnham (1941) pointed out long ago. However, the key point in this regard is not that there is a differential distribution of decision making authority, either in the economic realm or in the political realm, for these would exist also under an egalitarian system but rather that associated with this decision making authority comes power and associated with this power comes a differential distribution not only of the surplus produced in the society but of the material and social necessities.

In other words, under a meritocratic system we are suggesting that associated with economic and political authority there will be unequal social rewards in addition to the unequal social resources necessary to accomplish the task. Under an egalitarian system the former would be absent. However, the ~~structure~~ structure and ideology of an egalitarian system will be dealt with later. The point being made at

this time is that in a meritocracy there will be extreme differences in the distribution of material social rewards - income and wealth and all the material goods, like housing, food and clothing that wealth can purchase. These differences can stem from one's structural location in terms of the economic or political hierarchies. This aspect will be considered when equality of opportunity is discussed.

In addition to social rewards accruing from economic or political considerations there is the social reward of prestige. In Canada (Pineo and Porter, 1967), in the United States (Hodge, Siegel and Rossi, 1966) and in other industrial nations (Hodge, Treiman and Rossi, 1966) it has been demonstrated that the prestige of occupations varies considerably. In Canada, the occupation with the highest social standing was a provincial premier while the lowest was a garbage collector (Pineo and Porter, 1967). In the United States the corresponding highest and lowest ranked occupations were Supreme Court Judge and shoe shiner. The general point is that in addition to material inequalities there is a subjective social evaluation of occupations and a corresponding ranking in terms of prestige awarded. Some American writers have treated this prestige dimension as the underlying cause of stratification systems rather than Weber had intended as a conceptually distinct but empirically related moderation of the economic-political dimensions. I would suggest that the economic and political dimensions determine the basis of these prestige hierarchies, or in broader terms that structure determines value patterns. Perhaps it may be advisable

to hypothesize that while the economic and political realms shape the underlying basis of these prestige hierarchies, value patterns may account for certain residual occupational evaluations i.e. clergymen, professors, intellectuals, etc.

In any case, economic, political and social differentials in rewards would be expected to exist in a meritocratic society. However, the truly interesting point is not that such inequalities exist but that they are attainable if one has the appropriate genetic and social characteristics. I am referring here to our ideological dimension - equality of opportunity.

The principle of equality of opportunity derives from a fundamental tenet of classic liberalism: that the individual - and not the family, the community, or the state - is the basic unit of society, and that the purpose of societal arrangements is to allow the individual the freedom to fulfill his own purposes - by his labor to gain property, by exchange to satisfy his wants, by upward mobility to achieve a place commensurate with his talents. It was assumed that individuals will differ - in their natural endowments, in their energy, drive, and motivation, in their conception of what is desirable - and that the institutions of society should establish procedures for regulating fairly the competition and exchanges necessary to fulfill these diverse desires and competences.

As a principle, equality of opportunity denies the precedence of birth, of nepotism, of patronage or any other criterion which allocates place, other than fair competition open equally to talent and ambition. It asserts, in the terms of Talcott Parsons, universalism over particularism, achievement over ascription. It is an ideal derived directly from the Enlightenment as codified by Kant, the principle of individual merit generalized as a categorical imperative. (Bell, 1972:40-41)

I quote at some length because Bell has truly captured the essence of meritocracy. In the first place, in accordance with classic laissez-faire liberalism, there is an emphasis on individual development. In this manner, by each person pursuing his own interests and developing his ability, the welfare of the collectivity is ensured. The principle in operation here is that one can best serve society by pursuing individual interests to the fullest. Since people perform best when they are pursuing careers or tasks they feel comfortable with, maximum effort is ensured. An individual is not only allowed the freedom to develop his interests and abilities, but also is rewarded appropriately in proportion to this development (inequality of condition) for doing so. Again, the Parsonian collectivity - self pattern variable can be brought in to illustrate that a person's loyalty is to himself rather than to the total collectivity or to his family. This emphasis can be contrasted against communal society where one's allegiance was to the collectivity and to the family.

How does such a society ensure that talent and potential are developed? By institutionalizing a system of equality of opportunity. Each person has an equal social start to develop his or her abilities and potential. Of course, genes are not equally distributed in the population, but this is deemed as appropriate. Genetic abilities are, first, to be developed, and second, to be rewarded. This underlying moral proposition will be elaborated upon later. This development operates in a universalistic achievement setting. Standards are applied to individuals uniformly and not particularistically. Occupational

attainment is by competition in an achievement oriented system. It is deemed inappropriate for the family or any other group to pass along any advantage to the individual. The individual must attain success on his own, that is, on the basis of his genetic inheritance plus his drive or motivation. Hence, it is not just that there is equal opportunity to become unequal. More explicitly, there is equal opportunity to develop one's natural endowments, the development of which is then differentially rewarded. This is in contradistinction to an egalitarian society where there is also equal opportunity to develop one's natural abilities but these differences, once developed, are not unequally rewarded. In conclusion of this point Michael Young's characterization of the successful seems appropriate:

Today the eminent know that success is just reward for their own capacity, for their own efforts, and for their own undeniable achievement. They deserve to belong to a superior class. They know, too, that not only are they of higher calibre to start with, but that a first-class education has been built upon their native gifts. (Michael Young, 1967:106)

The moral theory underlying the meritocratic society discussed above is grounded in the premise that differences in material inequalities are appropriate when these inequalities arise as differential rewards for varying levels of performance. Performance, in turn, is dictated largely by an individual's genetic component. In short, genetic superiority is rewarded. However, although it is appropriate that parents pass along their genetic advantages or disadvantages to their offspring, it is not appropriate for parents to attempt to transmit any social advantages. Under the system of equal opportunity each

individual must make it on the strength of his genetic potential. As Young pointed out, a superior education is devoted to those of great potential and thus they become capable of assuming the more complex occupational positions in society. Functionalists would probably maintain that the social inequalities are merely rewards for the performance of more complex and technical tasks and such rewards are necessary to induce individuals to fill these positions. Unfortunately, this position rests on a rather tenuous theory of motivation and, secondly, masks the underlying principle that genetic endowments are rewarded.

What variables then, are related to the formation of educational and occupational aspirations? In general, the moral theory sketched above would indicate that in a meritocracy education and occupational aspirations should be strongly related to variables that purport to measure differences in innate ability or that attempt to measure drive. Hence you would expect to find strong correlations between mental ability and academic achievement and educational and occupational aspirations. Any measures of n-ach or drive, when combined with high mental ability, should be strongly related to aspirations. It would be expected that a student's academic program in high school would be strongly related to his or her aspirations but that this program would mainly serve as an intervening structural conduit between mental ability and aspirations. One would also expect that the parents aspirations for their offspring would be related to the student's aspirations. However, the parents aspirations again would not be an independent causal influence but would rather reflect the student's genetic potential as measured by his mental

ability and his performance as measured by his academic achievement.

What variables would you not expect to be related to aspirations or only weakly related to aspirations? In general, these would be variables related to the transmission of ascribed characteristics. One would not expect that the structural location of the parents in the occupational hierarchy, that is, SES, would be related to aspirations. It is remembered that parents are not allowed to pass along the social advantages earned by one generation. Each generation must earn its own success. Hence, SES would be only weakly related to aspirations. Similarly, sex as an ascribed characteristic would be unrelated to aspirations as would such other variables as religion, ethnicity, language, etc. Any advantages or disadvantages entrenched in socio-cultural groups would not be passed along to the students in a complete meritocracy. Neither the family nor any other social group would be allowed to transmit any social advantage either material or non-material to the new aspirants.

Egalitarian Society

Similar to communal society, egalitarian society has essential equality in the distribution of material goods. The only inequalities that are justifiable in egalitarian society are those that stem from the authority structure in the sense of being resources necessary to accomplish a particular task. In other words, while inequalities in resources are necessary to accommodate the division of labor

and the accompanying authority structure, there are no inequalities in the sense of social rewards. For example, doctors would still have authority by virtue of their specialized knowledge over numerous personnel: receptionists, nurses, orderlies etc. They would also have access to considerable societal resources. That is, for their private practice they would have offices with waiting rooms and several examination rooms and the necessary technical equipment. In the hospital they would have access to all the resources marshalled by the hospital. The doctors' use of these resources can be contrasted against the street cleaner who, apart from his broom, has control over very little of society's resources. The point being made, however, is that while resources must be differentially allocated to fulfill the requirements of the division of labor, incomes or material rewards for the performance of tasks or occupational roles can be essentially equal. How can this be? This situation can exist because egalitarian society is premised on an alternative moral theory and has the motivational structures and processes necessary to accommodate this ethical position. This will be examined shortly.

In egalitarian society there would be no class conflict as we know of it today in western industrial societies. Contrary to the position that the distribution of authority is responsible for class conflict (Dahrendorf, 1959), we suggest that while the distribution of authority may create some type of conflict, it will not generate the pervasive class conflict, particularly when it is not combined with the existence of widespread material social inequalities,

including private property, and particularly when the distribution of authority does rest on technical competence rather than ascribed characteristics. In short, there may be some industrial conflicts resulting from the competition over jobs but these will not be the pervasive class conflicts of stratified societies.

As with meritocratic society, egalitarian society entails equality of opportunity. Furthermore, as was mentioned earlier, this equality of opportunity is not simply equality of opportunity to become unequal in the sense of amassing material goods. Rather it is equality of opportunity to develop one's potential through education and/or training and to acquire an occupational position consistent with that education. Hence, under an egalitarian normative structure the cultivation of genetic potential is an end in itself rather than a means to an end. In a meritocracy, the development of ability is the means of attaining the material inequalities that are available. In an egalitarian system the end itself is to fulfill oneself through the maximum development of ability. The reward for this is intrinsic rather than extrinsic. The individual has the knowledge that he or she has maximized his performance and secondly, has contributed as much as possible toward the overall good of the collectivity. This brings up the contentious point of whether or not prestige difference will arise out of differential conformity to the normative structure of the society. Since this is a very involved and complicated subject it deserves more attention than that possible at this time. Suffice it to say, and here I am granting this point to enable the discussion

to pursue the major focus of this chapter; that some differential prestige may accrue to individuals who best actualize their genetic potential.

The moral theory underlying egalitarian society postulates that regardless of a person's biological ability as determined by his genes and regardless of the education and training a person receives in conformity with this ability and, finally, regardless of the occupational level attained, each individual is just as worthy as any other and just as eligible to share in the material produce of the society. In other words, genetic potential is not rewarded. This principle can be seen as an extension of egalitarianism in the civil and political realms to the social and material sphere. Individuals are considered as equal before the law and they are considered as equal in political decision making in the sense that all are allowed and expected to exercise their franchise by voting. The principle stated above merely takes egalitarianism one step further into the social realm. As stated earlier, there would still be a hierarchy of authority and decision making founded upon knowledge and expertise but now the production of society would be shared equally. Such sharing is based on the ethical premise of unity of man regardless of genetic endowments. Of course it is obvious that this position does not seek to negate the development of individual potential. Instead, this potential is developed first, for intrinsic satisfaction and, secondly, for the benefit of the total collectivity.

What relationships would be expected between variables under these structures and under this moral theory? In particular, to what

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other social variables would we expect educational and occupational aspirations to be related? Essentially, the relationships are similar to those postulated for meritocratic society. Since both systems have institutionalized equality of opportunity and universalistic achievement systems of developing individual talent, then it is expected that in egalitarian society as in meritocratic society that aspirations would be strongly related to achievement-performance variables like mental ability and academic achievement. These variables would determine, instead of be determined by, parents' aspirations for their children, and the students' placement in a high school program. Sex, religion, ethnicity and other ascriptive factors would not be expected to be related to educational and occupational aspirations. One set of variables that may differentiate meritocracy from an egalitarian system are those related to the formation of moral consciousness in the individual. Under a meritocracy it may be the case that the differential material rewards would serve as motivational inducements to attain highly technical and complex positions. In other words aspirations may be high for those individuals who have thoroughly internalized the meritocratic norm of individualism. On the other hand, under an egalitarian system it may be the case that aspirations may be high for those individuals who have internalized the egalitarian norm of collectivism as opposed to individualism.

Stratified Society

The opposite of egalitarian society under our typology is stratified society with greater differences in the distribution of

wealth, power and prestige and with an ascriptive basis of occupational role recruitment. Stratified societies are similar to meritocracies in that there is a differential distribution of material and non-material rewards. In fact, we illustrated this feature of meritocracies with reference to the literature dealing with societies that would be classified as stratified, therefore, little more needs to be said regarding the distribution of rewards under a stratified system. Wealth, power and prestige are all unequally distributed in stratified society.

How are these inequalities attained in stratified society? They are primarily attained through particularistic ascriptive transmission. The individual student belongs to a number of social groups, i.e. religious, ethnic, linguistic, sexual, residential, peer groups and, of course, the most important, the family. These groups seek to maintain themselves by transmitting to the student not only material goods as in the case of family inheritance but also, and more importantly, certain non-material values and attitudes toward education. For example, the upper-middle class transmits positive educational values to their children as do the English charter groups in Canadian society, the English as opposed to the French linguistic groups, males as opposed to females, urbanites as opposed to ruralites and so on. In the absence of a common value constellation and with each group attempting to perpetuate itself, these social aggregates pass along to succeeding generations differential values toward education.

In addition to transmitting positive or negative educational values these groups also, in part, influence the cognitive development

of the students. Far from being a strictly genetic or biological concept, ability or potential is partly socially determined. It is this social component that is affected by the behavioral tendencies of the particular social group. For example, higher SES families tend to play verbal or logistical games with their children as opposed to lower SES families who play physical types of games. This stimulation in early childhood makes the higher SES child more familiar and more competent at the paper and pencil sit-down tests which are normally used to measure mental ability. Hence when mental ability is conceived of as measuring innate ability or potential, the higher SES child appears more intelligent when in actuality what has happened is that the normative and behavioral environment has influenced the test score.

The main mechanism of particularistic-ascriptive status transmission, however, is the family operating through the school. Traditionally the school has been viewed as the bastion of equality of opportunity. It was held that schooling should counteract the undesirable influences found in the home and should provide for a perfect contest mobility system whereby each student starts off the contest on a par with all other students. Recent research by Coleman (1966) and by Jencks (1972) suggests that the influence of the family is not negated by the schools. The proposition can be taken one step further to suggest that in stratified societies the influence of the family is maintained and perpetuated by the schools. While the manifest function of the educational system is to provide equality of opportunity its major latent function is to provide

the family with a streaming mechanism whereby the social advantages of higher SES can legitimately be transmitted to succeeding generations. In short, it is suggested that at one time the benefits of higher SES status were simply passed on directly to the next generation. However, with increasing complexity and differentiation in the society at large and within the educational sector in particular, these advantages are now socially transmitted to the new generation in the form of the appropriate values and attitudes and just as importantly, the appropriate cognitive skills.

The moral theory underlying these structures and processes is one that stresses the primacy of particular social groups to which individuals belong. This principle can be contrasted against the individualism of meritocratic society where each person must achieve success on the basis of his or her innate ability alone and without any assistance from his family or any other social group. Many stratified societies profess these values even when their institutions do not reflect them. Instead, in a stratified society the primacy of group membership achieves ascendancy over universalistic-achievement norms. It is deemed appropriate for the family, or ethnic group, or linguistic group, or sexual group, or the residential group to pass on its value system and behavioral peculiarities to young members of the group. These values and behavioral tendencies of course include advantages and disadvantages for educational attainment depending upon their similarity to the values of the elite groups in the society. Therefore, in stratified society rewards are distributed through attainment,

but attainment, in turn, is largely dictated by ascriptive particularistic criteria. Those of higher SES family background transmit to their heirs with the support of the educational system, the social graces and the cognitive skills necessary for success in the occupational world.

What relationships between social variables and educational and occupational aspirations would be expected under this normative system? First, we would expect that ascribed characteristics would be strongly related to educational and occupational aspirations. Ethnicity, language, religion, sex, residential location, and SES should be strongly related to a student's aspirations. Academic program should be related to a student's aspirations, however, program in turn would be expected to be a mediating variable between a child's social origins and his aspirations. On the other hand, mental ability and academic achievement would be expected to be only weakly related to aspiration or only weakly related to program. The specification of an explicit causal model is left to the next chapter, however, the point here is that in a stratified society ascribed characteristics achieve dominance over achieved characteristics.

Conclusion

A theoretical framework for the explanation of educational and occupational aspirations has been developed. Technology was seen as operating in a demand manner by creating an objective range of occupational positions. Ideology and its structural counterparts were viewed as providing individuals with the necessary subjective

motivational states to fill the demand created by technology. The two salient ideologically important structural dimensions of equality of opportunity and equality of material rewards were cross-classified yielding four ideal types of societies with their own particular structures, processes, and moral theories. Communal society involved essential equality of material rewards and low equality of opportunity; stratified society involved widespread material inequalities and low equality of opportunity; meritocracy involved widespread material inequalities but high equality of opportunity, and egalitarian society involved essential equality of material rewards and high equality of opportunity. Relationships among social variables in each of these societies were explored. In particular, educational and occupational aspiration were found to be associated with ascriptive factors in communal and stratified societies and with achieved or genetic factors in egalitarian and meritocratic societies.

CHAPTER IV

CANADA-UNITED STATES COMPARISON OF THE PROCESS OF ASPIRATION FORMATION

The general objective of this chapter is to pursue suggestions for research frequently found in the literature regarding the status attainment process. For example, Sewell, Haller and Ohlendorf (1970) have developed a relatively powerful model of the status attainment process which includes educational and occupational aspirations as intervening variables. Our research will treat educational and occupational aspirations as dependent variables and will attempt to apply the Sewell, Haller and Ohlendorf (1970) model to data generated by the Porter and Blishen project on the Educational Aspirations of Ontario High School Students. By applying this model to earlier school grades, to Canadian society, and to women, we hope to expand our knowledge of the process of attitude formation. Suggestions for further research in the literature frequently cite these three areas as being neglected to date (cf. Sewell, Haller and Ohlendorf, 1970: 1025; Haller and Portes, 1973:77).

We will accomplish this objective by placing Canadian and American societies on the typology developed in Chapter III. In this manner, by considering both societies on the two dimensions - equality of condition and equality of opportunity - we will be able to make some a priori statements about the differences in the relationships among variables in the two countries. These hypotheses will then be

tested by comparing the path coefficients generated by the Sewell, Haller and Ohlendorf (1970) model and the path coefficients generated by the Porter/Blishen project. We will first compare male high school seniors with the American model, then we will introduce females into the comparison and finally, we will compare models on grades 8 and 10 with the grade 12 model.

The Placement of Canadian and American Societies on Our Typology

In general, a review of the literature reveals that Canada is seen as more elitist and ascriptively oriented than the United States:

(1) Despite the inadequacy of the data, there is considerable agreement among those who have written about it that Canadians are more conservative and authoritarian and less egalitarian in values than are the people of the United States. (Porter, 1967b:48)

(2) Surely the direction in Canada is similar. The prominence of equality is probably less. Perhaps distrust of government is less also. The difference lies elsewhere: cultural values and social patterns in Canada in comparison to those in the United States, seem muted. The same values are held - but with much more hesitancy. Excess itself is disvalued. (Naegle, 1961:101)

(3) It can be described succinctly as a conservative syndrome made up of a tendency to be guided by tradition; to accept the decision making functions of elites, many of whom virtually or actually inherit their positions; to put a strong emphasis on the maintenance of order and predictability. (Vallee and Whyte, 1971:559)

Lipset (1967); using Parson's pattern variables, and introducing elitism-egalitarianism as one of his own, in the absence of hard data makes an impressionistic judgement and

comes to a similar conclusion.

TABLE 4-1

TENTATIVE ESTIMATES OF RELATIVE RANKINGS OF THE FOUR ENGLISH-SPEAKING DEMOCRACIES ACCORDING TO STRENGTH OF CERTAIN PATTERN VARIABLES (RANKINGS ACCORDING TO FIRST TERM IN POLARITY)

	<u>United States</u>	<u>Australia</u>	<u>Canada</u>	<u>Great Britain</u>
Elitism-Equalitarianism	3	4	2	1
Ascription-Achievement	4	2.5	2.5	1
Particularism-Universalism	4	2	3	1
Diffuseness-Specificity	4	2.5	2.5	1

(Source: Lipset, 1967:285)

Canada is classified as more elitist, more ascriptive, more particularistic and more diffuse as over against the United States which is seen as more egalitarian, more achievement oriented, more universalistic and more specific (cf. Lipset, 1967:285-286; Lipset, 1970:38-39).

Two comments can be made on Lipset's classification. First, his use of the egalitarian-elite dimension as according respect to people because they are human beings versus acknowledging the general superiority of persons in positions of power and privilege, (Lipset, 1967:24) is not the same usage we seek to make of it here. Rather, we

seek to bring more "hard" data to bear on the question of inequality of condition in Canada versus inequality of condition in the United States. Once this is accomplished, we will approach the opportunity dimension (achievement and universalism) and thus by considering our two basic dimensions place Canada and the United States on our typology.

Secondly, although we are not primarily interested in an accounting for these differences in Canadian and American society, it is interesting to note Lipset's comments in this regard.

In general terms, the value orientations in English-speaking Canada stem from a counter-revolutionary past, a continuing need to differentiate itself from the United States, the influence of monarchical institutions, a dominant Anglican religious tradition, and a less individualistic and more governmentally controlled frontier expansion than was present on the American frontier. (Lipset, 1970:39)

The Extent of Inequality of Condition in Canada and in the United States

There are many forms of inequality. Here we will be concentrating on income inequalities because in this area there are some relatively reliable data available. Table 4-2 on page 75 shows that in Canada and in the United States, while incomes were unevenly distributed, the two distributions are roughly similar. The striking aspect of this table is that the Canadian and American income distributions are so similar. The lowest twenty percent of Canadian and American families receive only a small percentage of the total

TABLE 4-2

CANADIAN AND AMERICAN INCOME DISTRIBUTIONS BY QUINTILES

	<u>Canadian Family Units</u>		<u>American Families</u>	
	(1)	(2)	(3)	(4)
Lowest fifth	4%	4.2 to 4.4%	6%	4%
Second fifth	10%	11.2 to 12.0%	12%	10.9%
Middle fifth	18%	17.8 to 18.3%	18%	17%
Fourth fifth	24%	23.3 to 24.5%	24%	23.4%
Highest fifth	44%	41.1 to 42.8%	41%	44.7%

Sources (1) Maslove, 1973:15 for the year 1969

(2) Podoluk, 1968:277 range for the years 1951, 1954, 1957, 1959 and 1961. Based on non-farm family units.

(3) Miller, 1971:15 for 1968. Based on farm and non-farm income, including blacks. From U.S. CPS data.

(4) Kolko, 1962:14 for the year 1959.

income, as do the second and the middle fifth. The bulk of total income is received by the top two fifths. In addition, no matter which data are used in the comparison of Canada and the United States, the differences in each quintile are insignificant. On this basis it

appears that the level of income inequality is similar for the two societies. Furthermore, taxation in both countries appears to have little effect upon these distributions (cf. Maslove, 1973; Podoluk, 1972; Miller, 1971; Kolko, 1962).

Another method of examining the extent of income inequality in Canada as opposed to the extent of income inequality in the United States is to compare Gini indices.¹ Russett et. al. (1964:245) list an index of .397 (1956 data) for the United States and .390 (1955 data) for Canada. Calculations based upon more current income distributions put these indices at .350 for the United States (Miller, 1971:277) and .345 for Canada (Podoluk, 1958:274; 1961 data). As these Gini indices reveal, Canada and the United States are essentially similar in the level of income inequalities maintained.

The Extent of Inequality of Opportunity in Canada and in the United States

In comparing the opportunity structures in Canada and in the United States we will be examining the availability of higher education in the two societies, the content of the high school curricula, the melting-pot versus the mosaic approach to ethnic assimilation and finally, female participation in the labor force.

Regarding the availability of higher education in the two countries, there is the often cited finding that Canada educates a

1 A Gini index is a statistic measuring the area between a Lorenz curve and the diagonal over the total area under the diagonal. Thus high values indicate inequality while low values indicate equality in the distribution.

smaller percentage of her young than does the United States (cf. Lipset, 1967:297; Lipset, 1968:490; Lipset, 1970:40; Porter, 1967a: 29-30; Porter, 1967b:55; Pike, 1970:13; Economic Council of Canada 2nd Annual Review, 1965:80-83). This is usually interpreted to indicate that Canada is more ascriptive and elitist as far as educational opportunity is concerned. The interest generated by the publication of comparative figures in the Economic Council of Canada's 2nd Annual Review has resulted in the publication of many similar comparisons. However, the most current figures that were available appear to be found in the Special Labor Force Study #7 entitled "Educational Attainment in Canada: some regional and social aspects" (D.B.S., 1968). Figures presented in Table 3 on page 78 were extracted from that publication.

As this table reveals, Canadian youth achieve lower educational levels than those of the United States. The cut-off point appears to be between "some secondary school" and "completed secondary school". The percentages reveal that Canadians are more prevalent in the categories up to and including "some secondary school". However, after this point American youth are more prevalent at the more advanced educational levels. For example, while 35.9% of Canadian males in the 20-24 year old age cohort have some elementary school, only 15.9% of American males in the 20-24 year old age cohort are in the same category. The reason is, of course, that they have gone on to higher levels as the next category reveals. While only 21.2% of Canadian males have completed high school, 38.1% of American

TABLE 4-5

PERCENTAGE DISTRIBUTION OF THE POPULATION 20-24 YEARS
OF AGE, BY LEVEL OF EDUCATION AND SEX, UNITED STATES
(MARCH, 1966) AND CANADA (JANUARY, 1966)

	<u>Male</u>		<u>Female</u>	
	<u>Cda.</u>	<u>U.S.A.</u>	<u>Cda.</u>	<u>U.S.A.</u>
Some elementary school education or less	9.2	4.6	8.0	2.9
Completed elementary school	12.3	4.5	9.8	3.7
Some secondary school	35.9	15.9	37.7	18.3
Completed secondary school	21.2	38.1	31.0	48.9
Some university	16.5	27.8	9.8	19.0
University degree	4.9	9.1	3.7	7.2

Source: Special Labour Force Study #7 (D.B.S., 1968:41)

males have done so. Similarly, the tendency for the American percentages to exceed the Canadian continues in the higher educational categories.

It is interesting to note that while more females in both countries completed secondary school than males, fewer females go on to university. Later in the paper we will be comparing labor force participation rates for females as an indicator of the opportunity structures in the two countries. In any case these data confirm the

proposition that Canada is far more elitist and ascriptive in its educational opportunity structure. The general point is that Americans stress, to a greater extent than Canadians, a belief in equality of educational opportunity or a more pronounced belief in university as the proper institution for vocational preparation. The American belief in equality of educational opportunity has been made numerous times and in many ways:

Americans believe so strongly in equality of opportunity that they are often unwilling to recognize, let alone approve, hereditary class differences (Wrong, 1955:23)

The Canadian wants to be part of an open society, even if he submits more willingly than the American to the facts of inequality (Naegle, 1961:502)

One consequence of the value system which emerged is that Canadians have always been less intolerant of economic inequality and social stratification. Horatio Alger has never been a Canadian hero. (Lipset, 1967:287-288)

Since Canada is more elitist in its educational opportunity structure, one would expect that the value of a higher degree in Canada would be greater than that in the United States, since there would be a greater scarcity of individuals with degrees in Canada. It has been found that, in fact, the value of a higher degree is greater in Canada than it is in the United States (Bertram, 1966:58; Economic Council of Canada, 2nd Annual Review, 1965:89) which further supports the position that Canada is more elitist than the United States in its educational opportunity structure.

It is interesting to note that while Canada sends fewer of

her young to universities than does the United States she still spends a greater proportion of her GNP on education than does the United States and that, in addition, the rate of growth for educational expenditures is greater in Canada. In 1967 the United States spent 5.1% of its GNP on education which reflected a growth rate of 11.7% from 1961. Canada, however, spent 6.4% of GNP in 1967 which reflects an average annual growth rate of 16.7%

since 1961 (Economic Council of Canada, 8th Annual Review, 1971:11). To a certain extent this catching up in educational expenditures can be interpreted to suggest that Canadian values toward education are becoming more like those values held in the United States.

A second piece of evidence in support for the inference that Canada is less interested in equal educational opportunity and is more elitist and ascriptive than the United States stems from the contention that in Canada the content of the high school curricula tends to be intellectual as opposed to American vocationalism (Wrong, 1955:19; Lipset, 1970:41). In part, this may be interpreted as suggestive of the fact that in the United States, employers have managed to pass the cost of educating and training their employees directly on to the public. However, it is also suggestive of a more elitist content in education. As Porter has noted of higher education:

Conservatism is reflected in the high status of the humanities in Canadian universities, and the view, still expressed with some frequency, that an

education in the classics, history or belles lettres is a better preparation for leadership roles than training in the social sciences (Porter, 1967b:52).

This view corresponds with research reported by Downey (1971:148-149) which showed that there was more difference in attitudes to education between Canadians and Americans than between any two American regions.

Downey's findings were as follows:

First, Canadians appeared to believe, more emphatically than did Americans, that the public school should serve the individual; Americans believed, on the other hand, that it should serve society. Canadians, as a group, assigned considerably higher priority than did Americans to knowledge, scholarly attitudes, creative skills, aesthetic appreciation, and morality, as outcomes of schooling. Americans emphasized physical development, citizenship, patriotism, social skills, and family living much more than did Canadians. The former attitudes may be attributable to a value orientation emphasizing the improvement and well-being of society. In short, it appears that Canadians regard the educational system as at least in part appropriately transmitting traditional intellectual values and also in part the "high culture" of the society to the young whereas Americans seem to view education as more instrumental and related to occupational mobility than Canadians (Downey, 1971:148).

This passage also reflects more of a collectivity orientation in the United States as opposed to Canadian individualism.

A third piece of evidence which suggests that Canada is more particularistic and ascriptive as over against the United States which is more universalistic and achievement oriented than Canada is the melting pot versus the mosaic approach to ethnic assimilation

X (Lipset, 1970:53-54; Porter, 1967a:17; Wrong, 1955:49). It is held that ethnicity continues to be important as a social category, particularly as regards occupational mobility whereas in the United States many accept a new "American" identity. This point is buttressed by the fact that Canadian census is different from the American census in that the former reports ethnic origin of every citizen except Jews and that it records religious data gathered from every individual (Lipset, 1970:55; see also Porter, 1965:79 and Porter, 1967a:16-17). It appears that Canadians, particularly in the past, have made judgments on particularistic grounds as opposed to the more universalistic approach found south of the border where every citizen, at least every white citizen, assumes a common identity and thus is judged on a universalistic basis vis-a-vis the others. This generalization must be tempered by the fact that there appears to be a revival of ethnicity in the United States at the present time and by the fact that blacks are an exception to the rule.

Finally, we will examine the extent to which gender makes a difference as regards labor force participation in the two societies. This will show the degree to which the occupational structure has accommodated female participation in the labor force.

As Chart I on page 88 shows, female participation in the Canadian labor force in 1961 resembles female participation in the 1950 American labor force. We appear to be about a decade behind the United States regarding the opening up of the occupational structure

2 3

OF/DE

(Source: Ostry, 1968:11)

to females. However, even in 1950 the second peak in the American chart is higher than the Canadian second peak. However, comparing the U.S. 1960 chart to the Canadian 1966 chart reveals that it does not appear that the second peak of labor force participation of middle aged women will materialize in Canada as it did in the United States. These data clearly reveal that gender and age do make a difference as regards labor force participation and that the United States has been more successful in opening up the occupational opportunity structure to women than has Canada.

Summary and Hypotheses

In summary, then, we view Canadian society as having approximately the same level of material inequalities as the United States but with less of an emphasis on equality of opportunity, particularly equality of educational opportunity, to attain these inequalities. Since numerous studies have shown that in both societies an individual's social origin is related to his or her eventual occupational attainment, we would locate both Canada and the U.S.A. in the stratified cell of our typology as is shown by Diagram 4-1 on page 85.

In accordance with this placement on the typology specified in Chapter III and with the theory elaborated there, and in accordance with the material reviewed in locating the two societies, a number of hypotheses have been formed. First, we would expect that aspirations of high school seniors would be lower in Canada than in the United

DIAGRAM 4-1

 TYPOLOGY OF THE IDEOLOGY OF MOTIVATIONAL SYSTEMS

States. Or, to be more explicit, we would expect that fewer Canadian students than American students would aspire to university education. Secondly, we would expect that SES would play a greater role in determining the formation of educational and occupational aspirations of high school students in Canada than in determining the formation of aspirations of students in the U.S.A. Thirdly, we would expect that as we examine earlier grades the analysis will more closely resemble the American model because it is in high school in Canada that attrition of lower SES students leaves the senior grades, as, in a sense, "survival" categories. Therefore, our fourth hypothesis is, in connection with hypotheses two and three, that SES will play a smaller role in the formation of educational and occupational

aspirations as we examine earlier school grades.

These hypotheses and the general process of aspiration formation will be tested by attempting to replicate the Sewell, Haller and Ohlendorf (1970) model. In addition to utilizing the same causal model, we will attempt to operationalize variables in the same manner, and furthermore, will apply the model to the same data base, that is, to male high school seniors. This should allow us to make some comparative statements on the process of aspiration formation in the two societies. We will also apply the model developed by Sewell, Haller and Ohlendorf (1970) to students in earlier school grades which will explicate the process of aspiration formation and allow a second type of comparison. Finally, we will apply the American or Wisconsin model to females and thus a third type of comparison will be possible.

Methodology

Analysis of the Data

The method of analysis selected to analyze the data is, of course, the same method of analysis used by Sewell, Haller and Ohlendorf (1970) namely, path analysis (cf. Wright, 1934; 1960a; 1960b; Duncan, 1966; Blau and Duncan, 1967; Land, 1969; Heise, 1969). This technique has been used extensively in stratification research to study occupational attainment and, or, educational and occupational aspirations (Sewell and Shah, 1967; Blau and Duncan, 1967; Duncan,

Haller and Portes, 1968; Sewell, Haller and Portes, 1969; Hauser, 1969; Siegel, 1970; Hauser, 1971; Woelfel and Haller, 1971; Williams, 1972). Treiman (1970) has indicated the usefulness of path analysis for making cross national comparisons of the process of occupational status attainment.

Path analysis is an extension of multiple regression analysis whereby the researcher outlines a theory specifying the temporal sequence of the variables and the causal relations between them. All variables are regarded as being completely determined by their respective causes and by a residual or error variable representing unmeasured causal factors, random measurement error and violations of the assumptions of additivity and linearity. Initial research suggests that the assumptions of linearity and additivity are appropriate:

For most research purposes, an additive model with its assumption of linearity and no interaction is fully justified and provides a parsimonious description of the process of status attainment (Gasson, Haller and Sewell, 1972:35).

Similarly, Haller and Portes (1973) make the same point "...we may conclude that initial findings furnish no reason for rejecting the assumptions of linearity and additivity in the process by which status aspirations are enacted" (1973:76-77). Typically, the models are recursive (although Wright, 1960 has indicated how feedback may be handled) and path coefficients or standardized regression coefficients are calculated. However,

there is some debate in the literature whether unstandardized or standardized coefficients are more appropriate (cf. Blalock, 1971). These path coefficients represent the relative magnitudes of the causal relations in the model. It was thought that variables has to be measured on interval scales but work by Labovitz (1967:1970), Boyle (1970) and Lyons (1971) indicates that no violence is done to reality when ordinal variables are introduced as independent or intervening influences, or alternatively, if these variables are accomodated through the use of dummy variables.

Path models are usually accompanied by a diagram specifying the causal relations between variables as indicated by the path coefficients. Unidirectional arrows portray these relationships while a bidirectional arrow indicates that the model does not attempt to analyze this intercorrelation. This was the case in the Sewell, Haller and Ohlendorf (1970) model for the exogenous variables mental ability and SES.

The investigation of educational and occupational aspirations is particularly suited to the application of path analysis. In the first place, a fairly powerful path model has been tested on data gathered in the United States. A similar application to Canadian data would produce systematic cross-national comparisons. Secondly, any path model is only as sound as its underlying theory and it is held that in this area, with the abundance of established propositions, a conscientious effort at theory construction is on the one hand overdue and on the other hand necessary. Thirdly, path

analysis is particularly suited to the specification of the complex process of attitude formation as it enables the researcher to trace the effects of certain exogenous variables through intervening or endogenous variables upon the dependent variables. With cross-tabular analysis one quickly runs out of numbers in certain cells when a complex, multivariate process is being studied. Fourthly, although the assumptions and requirements of path analysis are reasonably stringent I operate on the assumption that in sociological research progress is made through a judicious attempt to meet such requirements, through the application of the most powerful methodological and analytical tools, and through a careful and reasoned interpretation of the findings.

The Data

The data used by Sewell came from a questionnaire survey of all high school seniors in Wisconsin public, private, and parochial schools in 1957 and from a one-third random sample follow-up of these students in 1964-65. The analysis was performed on the 4388 males for whom data were available at both times which represent 87.7% of those in the original one-third sample.

The data to be used in the comparison are those gathered in the late spring and early summer of 1971 via survey research by John Porter and Bernard Blishen under a Canada Council grant for a study of the "Educational Plans and Aspirations of Ontario High

School Students". Populations selected for study were grades 8, 10 and 12 which were viewed as representing significant decision making points for students. A two stage stratified probability sample taking language of instruction, urban/rural location, and school status as indicated by the dominance of certain programs, produced samples of approximately 3000 students in each grade. Response rates as indicated below are fairly high for survey research of this nature.

TABLE 4-4

RESPONSE RATES BY LANGUAGE OF INSTRUCTION AND GRADE

	<u>Grade 8</u>	<u>Grade 10</u>	<u>Grade 12</u>
English schools	94%	88%	84%
French, bilingual schools	94%	93%	87%

The 75 item group administered questionnaire covered a wide range of variables: program, program change, self concept of ability, attitudes to school subjects and teachers, self-reported academic achievement, location of peers, identification of significant others, academic plans, aspirations and expectations, influence of significant others, aspirations of parents and friends, occupational aspirations, expected funding sources for university or community

college education, reasons for non-attendance at a post-secondary institution, university contact, educational and modernism values, life goals, knowledge of the post-secondary educational system, cultural enrichment, information on siblings, family decision making dynamics together with the usual sociological background variables as sex, age, language, ethnicity, religion, father's and mother's education and occupation. In addition the IPAT 'culture fair' test of mental ability was administered and academic grades were obtained from the school authorities. A measure of the urban or rural nature of the school was constructed from the sampling material and a new school status variable was created by aggregating individual SES measures for each school. Of course the salient variables for our purposes in this chapter are father's occupation, mental ability, academic achievement, mother's educational aspirations for her child, and the student's educational and occupational aspirations. In the next chapter where we will attempt to increase the power of the model by adding additional variables we will have occasion to draw upon this list of variables. A sample of 1000 parents, primarily mothers of students in each of the three grades was selected for interviews covering most of the variables mentioned above but probing more deeply on some. This will allow us to verify our original model which will be composed entirely of student reported information. As a checking procedure on the reliability of student reported data we will replicate the model substituting parent reported data where appropriate.

The administration of the student questionnaires, parental interviews, and the coding and editing of this material was contracted out to the Survey Research Centre at York University. Card image tapes containing the data started to arrive from York early in 1972 and since then have been converted to the OSIRIS format and are presently being analyzed for other purposes using the FTAW, AID and MCA programs of that package. Analysis of the data for the purposes of this and succeeding chapters will mainly be path analysis supplemented by marginals, cross tabulations and other multivariate techniques where necessary. In the process of analyzing the data all original variables have been preserved but some have been collapsed into more concise categories, some have been combined to form new scales and others are awaiting factor analysis prior to index construction.

The Wisconsin Model

Diagram 4-2 on page 93 presents the Wisconsin model of occupational attainment adapted to treat educational and occupational aspirations as the dependent variables. Socio-economic status and mental ability are independent variables in the model and it is expected that they will affect significant others' influence and the academic achievement of the student. In turn, academic achievement and significant others' influence are expected to exercise direct effects upon both educational and occupational aspirations.

DIAGRAM 4-2

Wisconsin Model of Antecedents of
Educational and Occupational Aspirations

Where:

X_1 = Mental ability (MA)

X_2 = Socioeconomic status (SES)

X_3 = Academic Achievement (AA)

X_4 = Significant Others' Influence (SOI)

X_5 = Level of Educational Aspiration (LEA)

X_6 = Level of Occupational Aspiration (LOA)

Operationalization of Variables

X_6 Level of occupational aspiration (LOA)

Sewell, Haller and Ohlendorf (1970)²:

Students responded to "I hope eventually to enter the type of occupation checked below". Response categories were office work, professional, executive, factory worker, salesman, owns, rents, manages small business, owns rents,

2 Details of the Wisconsin operationalization were supplied by William Sewell in a personal correspondence. See details in Appendix A.

manages farm and other. Together with other information responses were placed on the Duncan (1961) scale.

Porter and Blishen: Students were asked two questions "If you had your choice, what sort of job or occupation would you most like to make your life's work or career? Think about what you would like to be doing 15 or 20 years from now," and "Everyone doesn't end up doing the job he or she likes. Considering your ability, marks, ambitions and family finances, what job do you think you will actually end up doing?" Both aspirations and expectations were coded on the 2 digit Blishen (1967) scale. Occupational expectations rather than aspirations were selected for comparative and substantive research for three basic reasons. First, a comparison of both marginals with the marginals for father's occupation as also measured on the Blishen scale reveals that in terms of the labor force composition expectations are more realistic having the fantasy component taken out. However, expectations are still high in relation to the actual SES occupational distribution. Secondly, expectations correlate more strongly with other variables in the model as table one and note one in Appendix B show. Thirdly, it is suggested that expectations correspond more closely to Sewell's "hope eventually to enter" than the more freewheeling "If you had your choice ..." question. Both aspirations and expectations were coded on the two digit Blishen (1967) scale and also collapsed for cross tabular analysis into the first digit of the Blishen scale. The two digit scale was used in calculating the correlation matrix which produced the path coefficients and is, therefore, very similar to the Duncan (1961) scale.

Comments: It is known that such national rankings of occupations are highly correlated. (Blishen, 1967; Treiman, 1970; Pineo and Porter, 1967; Hodge, Treiman and Rossi, 1966).

X_5 Level of educational aspiration (LEA)

Sewell, Haller and Ohlendorf (1970): Students were asked for their educational plans for the following year. Responses were categorized into not

continuing, vocational school and college.

Porter and Blishen: Students were asked "When would you like to leave high school?" and "Then, what would you like to do?" Response categories for the first question were the appropriate grades and for the second question were (1) work (2) apprenticeship, private commercial, business or trade school (3) teachers' college or nursing school (4) community college (5) university, but probably not graduate (6) university (7) post graduate (8) other (9) don't know. Students were also asked "Not everyone expects to go as far in high school as he would like. Considering your ability, marks, ambitions and family finances, how far do you actually expect to go?" and "What do you actually expect to do after leaving high school?" Response categories were identical to the aspiration questions. Expectations were again selected for comparative purposes for the same reasons given concerning LOA. In this case it is even more obvious that educational plans correspond more closely to expectations than to aspirations. We will continue to use Sewell's terminology in describing these variables in this chapter. In the next chapter we will revert to their more appropriate descriptions.

Comments: For comparative purposes both aspirations and expectations after high school were collapsed into three categories - work, other post-secondary and university. It is not perfectly clear but it appears that state colleges in the Wisconsin operationalization were combined with university. In the Porter and Blishen research CAATS were classified as other post-secondary which is a more appropriate classification.

X₄ Significance others' influence (SOI)

Sewell, Haller and Ohlendorf (1970): Students were asked three questions - (1) My parents (a) want me to go to college (b) do not want me to go (c) do not care whether I do (d) will not let me go (2) My teachers in high school have (a) encouraged me to go to college (b) discouraged me from going to college (c) have had no effect upon my decision (3) Most of my friends are (a) going to college (b) getting jobs (c) going into military service (d) other. A weighted combination of parental en-

couragement, teacher encouragement and friends' college plans was used to measure SOI. The principal component method of factor analysis was used to determine the weights.

Porter and Blishen: Students were asked to indicate their mother's, their father's aspirations for them and their friends' aspirations on the same IEA scale as mentioned previously. These questions could serve as indicators of parental encouragement and friends' college plans. There was no comparable teacher question on the Porter/Blishen questionnaire.

Comments: In the light of this, a decision was made, in a sense, to simplify the scale rather than attempt to replicate Sewell (1970) as best as possible using a combination of friends' college plans and parents' aspirations. Several factors influenced this decision. In the first place, students were asked on the Porter/Blishen questionnaire to identify their significant others as regards their educational careers. Students overwhelmingly indicated that parents in general influenced them and placed friends and teachers as having little influence. A significant number mentioned that mother alone influenced them. Secondly, other research seems to support the proposition that mothers are the most salient significant others regarding educational plans. In the light of these considerations SOI was operationalized as mother's aspirations for her son or daughter on the same three-fold categorization as student's LOA.

X₃ Academic performance (AA)

Sewell, Haller and Ohlendorf (1970): Centile rank in high school class.

Porter and Blishen: Students were asked for their grades last year and for their expected grades in the current year. Response categories represent a five point ordinal scale. School authorities also reported grades as percentages which were retained and, in addition, transformed into a 5 point scale to serve in a reliability check upon self reported academic achievement.

Comments: It is interesting to note that Wolfel and Haller's (1971) measure of academic performance includes some indication of participation in extra-

curricular activities. Not surprisingly, the result is a low coefficient between mental ability and academic performance. School reported grades were selected as likely more reliable than self-reported grades. The higher correlations reported between school reported grades and other variables in the model as indicated by table one and note one in Appendix B seem to bear this out.

X_2 S.E.S.

Sewell, Haller and Ohlendorf (1970): Weighted combination of father's education, mother's education (from 1957) questionnaire) father's occupation, parental income (state tax return). Principal component method of factor analysis used to determine weights.

Porter and Blishen: Father's education, mother's education and father's occupation were all asked on the student questionnaire. Parental income was available from the parental interview for the approximate 1/3 parents (primarily mothers) that were interviewed. However, the Blishen 2 digit score for father's occupation was simply used to indicate SES since this score is formed in the first place by combining education and income.

X_1 Mental Ability (MA)

Sewell, Haller and Ohlendorf (1970): Henmon-Nelson Test of Mental Ability (1942). This test has a high verbal component.

Porter and Blishen: Institute for Personality & Ability Testing (IPAT) Test of "G": culture fair scale 3, form A. Prepared by R. B. Cattell and A.K.S. Cattell.

Comments: As mentioned previously, the IPAT test is based only upon symbolic manipulations, therefore, its use may soften the relationship between mental ability and SES. The entire score range rather than the collapsed categories (high, medium and low) was used in calculating the correlation matrix which produced the path coefficients.

Findings

Table 4-5 below presents the zero-order correlations between all variables in the Sewell, Haller and Ohlendorf (1970) model for male Wisconsin high school seniors and diagram 4-3 on page 99 presents the path coefficients calculated from these correlations. The model has been modified so that educational and occupational aspirations become the dependent variables rather than occupational attainment. The model explains 37% of the variance in level of

TABLE 4-5

CORRELATION MATRIX ON WISCONSIN MALE STUDENTS

	MA	SES	AA	SOI	LFA	IOA
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁						
X ₂	.288					
X ₃	.589	.194				
X ₄	.438	.359	.473			
X ₅	.418	.380	.459	.611		
X ₆	.445	.366	.470	.565	.771	

Source: Sewell, Haller and Ohlendorf (1970)

occupational aspirations and 41% of the variance in level of educational aspiration. A salient finding is that significant others' influence exerts a strong effect upon LOA and LEA and that background variables such as SES and mental ability appear to be mediated by SOI. In addition to being mediated by SOI, academic achievement continues to retain a substantial direct effect upon LOA and LEA. In turn, academic achievement is strongly related to mental ability.

DIAGRAM 4-3

Path Coefficients for Antecedents of Educational and Occupational Aspirations for Wisconsin Boys*

*Source: Sewell, Haller and Ohlendorf, 1970:1025

In summary, then, we can see in this path model a reflection of the American emphasis on equality of opportunity and upon achievement. Mental ability is strongly related to academic achievement which, in turn, influences significant others' perceptions which are strongly

related to both the educational and the occupation aspirations of students. A far less significant path, in terms of magnitude, is that from SES to significant others' influence.

In the light of these findings concerning Wisconsin male high school seniors it will be interesting to examine the magnitude of the relationships when the model is applied to Ontario grade twelve male students. It is to this that we now turn. Although we will be interpreting our findings as indicative of substantive variations in relationships, caution must be exercised as variables were not measured in precisely the same manner. Table 4-6 presents a summary of the path coefficients for each comparison group.

TABLE 4-6

PATH COEFFICIENTS FOR ANTECEDENTS OF EDUCATIONAL AND OCCUPATIONAL ASPIRATIONS FOR EACH COMPARISON GROUP

Dependent Variables and Comparison Group	Independent Variables				R ²
	MA	SES	AA	SOI	
	X ₁	X ₂	X ₃	X ₄	
<hr/>					
Wisconsin Boys					
A.A. X ₃	.598				.347
SOI X ₄	.179	.245	.320		.318
LEA X ₅			.219	.507	.410
LOA X ₆			.261	.442	.372

Ontario Grade 12
Boys

		x_1	x_2	x_3	x_4	R^2
A.A.	x_3	.297				.09
SOI	x_4	.212	.196	.123		.13
LEA	x_5			.211	.561	.41
LOA	x_6			.209	.381	.22

Ontario Grade 12
Girls

A.A.	x_3	.257				.07
SOI	x_4	.209	.222	.198		.18
LEA	x_5			.140	.691	.55
LOA	x_6			.172	.356	.19

Ontario Grade 10
Boys

A.A.	x_3	.287				.08
SOI	x_4	.262	.179	.173		.18
LEA	x_5			.165	.627	.48
LOA	x_6			.232	.397	.26

Ontario Grade 10
Girls

A.A.	x_3	.345				.12
SOI	x_4	.185	.232	.226		.20
LEA	x_5			.153	.695	.57
LOA	x_6			.194	.375	.22

Ontario Grade 8 Boys		X_1	X_2	X_3	X_4	R^2
A.A.	X_3	.282				.08
SOI	X_4	.075	.218	.361		.23
LEA	X_5			.157	.690	.59
LOA	X_6			.101	.375	.24

Ontario Grade 8 Girls		X_1	X_2	X_3	X_4	R^2
A.A.	X_3	.344				.12
SOI	X_4	.147	.189	.227		.16
LEA	X_5			.135	.719	.60
LOA	X_6			.171	.320	.17

Table 4-7 on page 103 presents the correlation matrix between all variables in the model based upon data from the Porter and Blishen project. Correlations were calculated for male, grade 12 students in English Schools. Students in French and bilingual schools will be analyzed separately later. The correlations reported in table 4-6 are generally lower than those reported by Sewell, Haller and Ohlendorf (1970). In particular, mental ability correlates considerably less strongly with other variables in the model. This is interpreted as indicating the superior nature of the culture-fair test administered in the Porter and Blishen project. Verbally based tests like the Henmon-Nelson test used in the Wisconsin study frequently merely capture the same dimension as measured by high

school grades.

TABLE 4-7

ENGLISH STUDENT CORRELATION MATRIX, GRADE 12 BOYS ONLY.

	MA x_1	SFS x_2	AA x_3	SOI x_4	LEA x_5	LOA x_6
x_1						
x_2	.142					
x_3	.297	.059				
x_4	.276	.233	.197			
x_5	.251	.202	.321	.602		
x_6	.262	.273	.284	.422	.573	

N = 1456

Diagram 4-4 on the following page represents the path model based upon these correlations. As the diagram shows, the model was just as successful in explaining variance in LEA as the Wisconsin model. Both explain 41% of the variance in LEA. However, our model explains less of the variance in LOA than the Wisconsin model - 22% as opposed to 37%. Comparing the two models we can see that significant others' influence, in our case mother's aspiration for her

DIAGRAM 4-4

Path Coefficients for Antecedents of Educational and
Occupational Aspirations for Ontario Grade 12 Boys in English Schools

son, has substantial direct effects upon both students' LOA and LEA. In fact the effect in the Canadian model on LEA is greater than in the American model. This can be interpreted within the theoretical perspective outlined in the previous chapter. In the more stratified society, Canada, the family to a greater extent serves as the mechanism of status transmission. Thus mother's aspirations very strongly influence the student's choice of an educational and occupational career. Academic achievement, in the Ontario model, also exhibits substantial direct effects upon LOA and LEA. ($p_{6,3} = .209$ and $p_{5,3} = .211$) In the Canadian model this effect is primarily direct and is not mediated by SOI as it is in the American model. Significant others' influence, if it is not influenced strongly by academic achievement is determined by mental ability

and SES. The path from mental ability to significant others' influence is stronger in the Canadian model than in the American. Apparently mothers in Canada base their aspirations for their sons upon some judgement of his genetic potential rather than upon school performance. In connection with this mental ability is less strongly related to academic achievement in the Canadian model than in the American.

Finally, it is interesting to note that our hypothesis concerning the greater relative effect of SES in Canada is confirmed by a comparison of the two models. While performance variables like mental ability and academic achievement continue to be more strongly related to LOA and LEA than SES, the gap between their relative effects has narrowed substantially. For example, in the Wisconsin model the relationship between academic achievement and mental ability is measured at .589 (p3,1) while the relationship between SOI and SES is measured at .245 (p4,2). In Ontario, however, these relationships measure .297 (p3,1) which is considerably less than in the Wisconsin model, and .196 (p4,2) which is not that much less than the relationship between SOI and SES in the Wisconsin model. In short, the effect of SES is relatively greater in Canada. The effect of SES is even greater, as we shall soon see, for grade 10 and 12 girls and for grade 8 boys.

Table 4-8 on page 106 presents the correlation matrix for grade 12 girls in English schools and diagram 4-5 on page 106 presents the path model based upon these correlations.

TABLE 4-8

ENGLISH STUDENT CORRELATION MATRIX, GRADE 12 GIRLS ONLY

	MA	SES	AA	SOI	LEA	LOA
	X_1	X_2	X_3	X_4	X_5	X_6
X_1						
X_2	.162					
X_3	.257	.140				
X_4	.296	.284	.283			
X_5	.288	.289	.335	.730		
X_6	.163	.163	.273	.405	.532	

N = 1400

DIAGRAM 4-5

Path Coefficients for Antecedents of Educational and Occupational Aspirations for Ontario Grade 12 Girls in English Schools

Comparing these data with the model presented for grade 12 Ontario boys reveals some interesting findings. First, the model is more successful in explaining variance in the level of educational aspirations of girls than it was for boys. The model explained 55% of the variance in LEA as opposed to 41% of the variance in boys' LEA. However, the model was not as successful in explaining level of occupational aspirations with only 19% of the variance in LOA explained as opposed to 22% for boys. A second significant finding is that SOI, or mothers' aspirations for her daughter, are more strongly related to her daughter's aspirations ($p_{5,4} = .691$) than were her aspirations for her son related to his aspirations. It appears that mothers have a greater effect upon their daughters than upon their sons. Thirdly, the direct effects of academic achievement of girls is less strongly related to LOA and LEA. This finding is in accord with the established proportion that although girls achieve high grades in school than do boys, fewer girls than boys aspire to university education. Apparently achieving good grades does not directly result in increased educational and occupational aspirations for girls as it does for boys.

A fourth finding is that although the direct effects of academic achievement are not that large for girls, the indirect effects through SOI are larger for girls than for boys. Apparently, mothers take greater cognizance of the achievement levels attained by girls and modify their aspirations for their daughters accordingly.

Mental ability, as with the boys, plays an important role in determining mothers' aspirations. A final significant finding is that SES appears to play a larger role for girls than it does for boys ($p_{4,2} = .222$ as opposed to .196 for boys).

Table 4-9 below presents the correlation matrix for Ontario grade 10 boys in English schools and diagram 4-6 on page 109 presents the path model based upon these correlations.

TABLE 4-9

ENGLISH STUDENT CORRELATION MATRIX, GRADE 10 BOYS ONLY

	MA	SES	AA	SOI	LEA	LOA
	X_1	X_2	X_3	X_4	X_5	X_6
X_1						
X_2	.154					
X_3	.287	.112				
X_4	.339	.239	.268			
X_5	.326	.260	.334	.672		
X_6	.226	.272	.338	.459	.580	

N = 1595

DIAGRAM 4-6

Path Coefficients for Antecedents of educational and Occupational Aspirations for Ontario Grade 10 Boys in English Schools

Diagram 4-6 will be compared with diagram 4-4 to get some idea of how the process of aspiration formation applies to an earlier school grade and a younger age cohort. As the diagram reveals, a greater amount of variance is explained in both LOA and LEA in the Grade 10 model. The model explains 48% of the variance in level of educational aspiration and 26% of the variance in level of occupational aspiration as compared with 41% and 22% for grade 12 boys. The effect of SOI on LEA is much greater in the grade 10 model with $p_{5,4} = .627$ as opposed to $.561$ for grade 12 boys. Academic achievement continues to directly influence level of occupational aspiration and level of educational aspiration, however, in grade 10 the direct effect upon LEA ($p_{5,3}$) has decreased from $.211$ for grade 12 boys to $.165$ for grade 10 boys. On the other hand the indirect path through SOI which was quite weak in the grade 12 model has correspondingly

strengthened. Mental ability continues to have a strong effect upon SOI; however, again the indirect path through academic achievement is stronger in relative terms. The changes in these relationships will become clearer as we introduce grade eight for comparison with grades ten and twelve. Certain tendencies which are evident in the grade ten-grade twelve comparison become sharper when the earlier grade is considered.

Table 4-10 on page 111 presents the correlation matrix for grade 10 girls in English Schools and diagram 4-7 on page 111 presents the path model based upon these correlations. Diagram 4-7 will first be compared with diagram 4-6 to indicate female/male differences in the models. Diagram 4-7 will then be compared to diagram 4-5 to indicate changes in the process of aspiration formation at earlier grades and for a younger cohort of girls.

As was the case when we compared grade 12 girls with grade 12 boys, the model explains more of the variance in the level of educational aspiration of grade 10 girls than it does for grade 10 boys (57% versus 48%). Again, similarly, the model explains less of the variance in level of occupational aspiration for grade 10 girls than it does for grade 10 boys (22% versus 26%).

A second significant point in this comparison is that although the effect of SOI increased substantially from grade 12 to grade 10 for boys, the effect is still greater for girls ($p_{5,4} = .695$). This

TABLE 4-10

ENGLISH STUDENT CORRELATION MATRIX, GRADE 10 GIRLS ONLY

	MA	SES	AA	SOI	LEA	LOA
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁						
X ₂	.176					
X ₃	.345	.131				
X ₄	.304	.294	.320			
X ₅	.299	.276	.375	.744		
X ₆	.212	.197	.314	.437	.495	

N = 1363

DIAGRAM 4-7

Path Coefficients for Antecedents of Educational and Occupational Aspirations for Ontario Grade 10 Girls in English Schools

supports the contention made earlier that the effect of mothers' aspirations are greater for daughters than for sons. A third point concerns the direct influence of academic achievement upon LOA and LEA. Again, as was the case when we compared grade 12 boys with grade 12 girls, academic achievement exerts a lesser direct effect upon LOA and LEA. However, as also was the case in the comparison of grade twelves, for girls academic achievement exerts a substantial indirect effect upon LOA and LEA through significant others' influence. Apparently the academic performance of girls causes their mothers to adjust their aspirations for their daughters but not for their sons. It may be held that for boys the normative expectation is some form of post secondary education regardless of high school grades whereas girls may only be encouraged to aspire to some form of post secondary education if they have good high school grades.

Fourthly, mental ability and academic achievement appear to be more closely related for grade 10 girls than for grade 10 boys although this was not the case in grade 12. Fifthly, mental ability exerts less of a direct effect upon SOI for grade 10 girls than for grade 10 boys. Finally, SES continues to exert a stronger effect on significant others' influence and through SOI on LOA and LEA for girls than for boys.

Comparing diagram 4-7 with diagram 4-5 reveals changes in the process of aspiration formation as we examine an earlier grade and younger female students. Firstly, as when we compared grade 12 boys

with grade 10 boys the analysis of the younger students explains more the variance in level of educational and occupational aspirations. Comparing grade 10 girls with grade 12 girls the explained variance increases from 55% for grade 12 girls to 57% for grade 10 girls for educational aspirations and from 19% to 22% for occupational aspirations. "Secondly, the effect of mothers' aspirations on daughters' aspirations are just as strong in the grade 10 model. Thirdly, the direct effects of academic achievement upon LOA and IEA are slightly stronger as is the indirect effect through significant others' influence. Fourthly, for grade 10 girls mental ability is more strongly related to academic achievement than for grade 12 girls (i.e.: $p_{3,1} = .345$ as opposed to $.257$ for the grade 12 model). Finally, the indirect effects of mental ability on SOI through academic achievement now appear to be greater than the direct effect (i.e.: $p_{4,1}$ has decreased from $.209$ for grade 12 to $.185$ for grade 10).

The correlation matrix for grade 8 male students is presented in table 4-11 on page 114. Diagram 4-8 on page 114 presents the path model based upon these correlations. Diagram 4-8 will be compared with diagrams 4-6 and 4-4, that is, with grade 10 and grade 12 male students, to compare and contrast the process of aspiration formation as it applies to even younger students. Here we will be looking at the process before drop-outs render the later grades, particularly grade 12, "survival" categories.

As diagram 4-8 reveals, we continue to explain more of the

TABLE 4-11

ENGLISH STUDENT CORRELATION MATRIX, GRADE 8 BOYS ONLY

	MA	SES	AA	SOI	IFA	LOA
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁						
X ₂	.159					
X ₃	.282	.192				
X ₄	.211	.299	.424			
X ₅	.220	.290	.450	.757		
X ₆	.154	.350	.350	.456	.573	

N = 1400

DIAGRAM 4-8

Path Coefficients for Antecedents of Educational and Occupational Aspirations for Ontario Grade 8 Boys in English Schools

variance in LEA as we go from grade 12 to grade 10 to grade 8. In grade 12 the model explained 41% of the variance in LEA, in grade 10 it explained 48% and in grade 8 it explained 59% of the variance in LEA. The explained variance in LOA went from 22% to 26% to 24% respectively. The effect of SOI upon LEA continues to be very strong ($p_{5,4} = .690$) as it was in both the grade 12 and 10 models, particularly the grade 10 model where $p_{5,4} = .627$. A third point of comparison is that the direct effects of academic achievement upon LOA and LEA have diminished somewhat and the indirect effect through SOI has strengthened. In this regard the model is becoming similar to the Wisconsin model presented in diagram II. Apparently, in the earlier grades academic achievement does effect a mother's aspirations for her child. Later on in the child's educational career any exhibited achievement does not effect the mother's aspirations for her child as strongly as it directly effects the educational and occupation aspirations of the student.

A fourth point to note is that the model also resembles the American model in that the direct path from mental ability to significant others' influence is now insignificant ($p_{4,1} = .075$) in comparison with the indirect path through academic achievement. Therefore, while the grade 8 model in many respects more closely resembles the Wisconsin model than the grade 12 model, it does not do so in the respect that we hypothesized earlier. It was hypothesized that the effect of SES would become smaller as we moved from

grade 12 to grade 8. However, the effect of SES has not become smaller but has strengthened if anything. ($p_{4,2} = .196$ for grade 12, .179 for grade 10 and .218 for grade 8) It appears then, that the net effects of the dropping-out of students, particularly low SES and low MA students, is to weaken the relationship between SES and other variables in the model. As we pointed out when the grade 12 boys were compared with the Wisconsin model, the effect of SES upon educational and occupational aspirations is far greater in Canada than in the United States.

We will now turn to a comparison of the grade 8 girls with the grade 8 boys. Following this, we will compare the girls across grades. The correlation matrix for grade 8 girls is presented in table 4-12 on page 117 and the path model is given by diagram 4-9 on page 117.

As the comparison of diagram 4-9 with diagram 4-8 reveals, the model continues to explain more of the variance in LEA and less of the variance in LOA for girls than it does for boys. The model explained 59% of the variance in the LEA of grade 8 boys and 24% of the variance in the LOA of grade 8 boys. For girls, the figures were 60% and 17% respectively. This highlights the model's inability to account for the occupational aspiration levels of girls. In the next chapter we shall attempt to develop a more powerful model which we hope will be more successful in accounting for the educational and occupational aspirations of both boys and girls.

TABLE 4-12

ENGLISH STUDENT CORRELATION MATRIX, GRADE 8 GIRLS ONLY

	MA X ₁	SES X ₂	AA X ₃	SOI X ₄	LEA X ₅	LOA X ₆
X ₁						
X ₂	.199					
X ₃	.344	.203				
X ₄	.263	.264	.316			
X ₅	.253	.287	.362	.762		
X ₆	.186	.187	.272	.374	.421	

N = 1300

DIAGRAM 4-9

Path Coefficients for Antecedents of Educational and Occupational Aspirations for Ontario Grade 8 Girls in English Schools

A first point of comparison concerns the effect of mothers' aspiration upon the students' level of educational aspiration. As was the case with the other grades, SOI continues to be stronger for girls than for boys ($p_{5,4} = .719$ as opposed to $.690$ for boys). Secondly, and again this is consistent with the other grades examined, the direct effects of academic achievement upon LOA and LEA are weaker for girls than for boys. For boys, to a greater extent than for girls, achievement in school results directly in enhanced aspirations. Thirdly, the effect of academic achievement upon SOI is now greater for boys than it is for girls ($p_{4,3} = .227$ as compared to $.361$ for the boys). Previously the reverse was the case. It appears that it is in the earlier grades that male achievement results in enhanced aspirations on the part of the mother. Fourthly, mental ability continues to be more strongly related to academic achievement for girls than for boys ($p_{3,1} = .344$ as compared with $.282$ for boys). Finally, the effect of SES upon SOI is less for girls than it is for boys. As we shall see when we compare girls across grades, it appears that the SES effect for girls is greatest at the grade 12 level, whereas the SES effect for boys is felt all through high school but is slightly stronger at grade 8 than later grades. This finding could partially account for the fact that although more girls than boys finish high school they do not go on to university. During high school the SES effect is felt on boys and many drop out leaving grade 12 as a survival group which then continues to university. However, for girls the SES effect

is not felt until grade 12 or 13 and thus this is the point of withdrawing or the termination of schooling.

Comparing the girls across grades (i.e. comparing diagrams 4-9, 4-7 and 4-5) reveals only a few interesting changes. First, the earlier the grade, the greater the explained variance in LEA. The model explained 55% of the variance in LEA in grade 12, 57% in grade 10 and 60% in grade 8. This tendency was also noted for the boys as we compared across grades. Secondly, the indirect effect of mental ability upon SOI through academic achievement is stronger in the earlier grades and, correspondingly, the direct effect is weaker. A third interesting comparison has already been mentioned. That is the weaker effect of SES upon SOI in grade 8 and the stronger effect in grades 10 and 12, particularly 12, in relative terms with the other variables in the model.

In addition to analyzing the data for boys and girls in English schools for grades 8, 10 and 12, the data were analyzed separately for boys and girls in French and bilingual schools in Ontario. Small N's presented somewhat of a problem so grades 10 and 12 were combined using the appropriate sample weights for the purpose of this analysis. Variables were operationalized using collapsed categories rather than the entire scale ranges as was the case with the English analysis. Table 4-13 presents the correlation matrices for both French girls and French boys and diagrams 4-10 and 4-11 on the following pages present the path models based upon these matrices. Diagrams 4-10 and 4-11 will

TABLE 4-13

FRENCH STUDENT CORRELATION MATRIX BOYS ONLY GRADES 12 & 10 COMBINED

	MA	SFS	AA	SOI	LEA	LOA
	X_1	X_2	X_3	X_4	X_5	X_6
X_1						
X_2	.181					
X_3	.228	.212				
X_4	.193	.219	.174			
X_5	.283	.344	.330	.629		
X_6	.249	.249	.327	.330	.535	

N = 183

FRENCH STUDENT CORRELATION MATRIX GIRLS ONLY GRADES 12 & 10 COMBINED

	MA	SES	AA	SOI	LEA	LOA
	X_1	X_2	X_3	X_4	X_5	X_6
X_1						
X_2	.126					
X_3	.294	.077				
X_4	.126	.271	.305			
X_5	.157	.272	.335	.841		
X_6	.090	.149	.211	.420	.480	

N = 226

DIAGRAM 4-10

Path Coefficients for Antecedents of Educational
and Occupational Aspirations for Ontario Grade
12 and 10 Boys in French and Bilingual Schools

DIAGRAM 4-11

Path Coefficients for Antecedents of Educational
and Occupational Aspirations for Ontario Grade
12 & 10 Girls in French & Bilingual Schools

be compared with each other and interesting findings highlighted.

First, it is interesting to note that again the analysis of the girls explains more of the variance in level of educational aspiration. In the French analysis this difference is even greater. The model explains 45% of the variance in the LEA of French boys and 71% of the variance in the LEA of French girls. Such a high figure for the French girls is partly attributable to the strong effect that mothers' aspirations have upon students' educational aspirations ($p_{5,4} = .815$ as opposed to $.589$ for the boys). Again the difference is much sharper for the French than it was for the English.

Secondly, we can see by these models that the direct effect of academic achievement upon LOA and LEA is much weaker for the girls than it is for the boys. ($p_{6,3} = .278$ for the boys as opposed to $.091$ for the girls and $p_{5,3} = .227$ for the boys as opposed to $.087$ for the girls). This was the case in the English analysis; however, the differences here seem sharper. While the direct effects are weaker for the girls, the indirect effect through SOI is stronger for the girls. ($p_{4,3} = .283$ for the girls and only $.106$ for the boys). Again, this was found to be the case in the English analysis. Finally, and again similar to the English analysis, the effect of mental ability upon academic achievement is stronger for the girls than for the boys.

Before concluding the analysis there is one more hypothesis that must be tested. The hypothesis was formulated earlier in the chapter that Canadian students would express less of a desire to

attend university than American students. Table 4-14 shows the percentages of American high school students aspiring to college as found by various American research projects.

TABLE 4-14
TRENDS IN EDUCATIONAL ASPIRATIONS

<u>Survey Date</u>	<u>Population</u>	<u>Percentage Aspiring to College</u>
1939	Persons under 20 years old not in college	54%
Winter		
Quarter 1955	Public high school seniors	58%
October 1959	High school seniors	47%*
October 1959	1960 high school graduates	53%*
Spring 1960	High school seniors	66%
Autumn 1965	High school seniors (at school)	58-65%
October 1965	High school seniors (at home)	57%

*Percentages of students with plans to attend college in the fall of 1960.

Source: Robert M. Hauser, 1970:115

The percentage range as indicated by this table is from 47 to 66% aspiring to college. As table 4-15 below indicates this

is far greater than the percentages aspiring or expecting to attend college in Ontario as revealed by our study. Admittedly these percentages may increase if Grade 13 students were surveyed but it is doubtful that this would account for the large differences between Canadian and the American students aspiring to college attendance. It appears that in Canada fewer high school students aspire towards university education. This is consistent with our placement of Canadian society as more stratified than American society.

TABLE 4-15

PERCENTAGES OF ONTARIO GRADE 12 STUDENTS IN ENGLISH HIGH SCHOOLS ASPIRING AND EXPECTING TO ATTEND UNIVERSITY

<u>Aspirations</u>			<u>Expectations</u>		
	<u>Grade</u>			<u>Grade</u>	
12	10	8	12	10	8
35.4	30.1	34.4	30.9	26.7	32.5

Conclusions

In chapter III a typology of societies was elaborated. In the present chapter the relevant literature was reviewed and Canadian and American societies were placed on the typology. Both were categorized

as stratified societies but United States society was located closer to the meritocratic cell of the typology than was Canadian society. This placement resulted largely because of a greater emphasis on equality of educational opportunity in American society. Based upon the location of both societies on the typology, hypotheses concerning the process of aspiration formation in the two societies were formulated. First, it was anticipated that more American students would aspire to attend university than would Canadian students. Secondly, it was expected that the role of ascriptive factors such as SES and family influence would be greater in Canada than in the United States. Thirdly, it was hypothesized that as earlier school grades were introduced into the analysis, the Canadian model would more closely resemble the American model because the Canadian analysis would now be performed on students before the drop-out rate took its toll. These hypotheses were tested by replicating the Sewell, Haller and Ohlendorf (1970) model on Ontario high school students. By and large, the hypotheses were confirmed. The analysis of earlier school grades and the application of the Wisconsin model to girls further refined our knowledge of the process of aspiration formation.

CHAPTER V

MOPPING UP THE PARADIGM

In the previous chapter, the Wisconsin model (cf. Sewell, Haller and Ohlendorf, 1970) was applied to data gathered from Ontario high school students and a comparison was made of the process of educational and occupational aspiration formation for male seniors in the United States and in Canada. Girls and earlier grades were introduced into the comparison and a number of interesting regularities emerged. First, when comparing the American and the Canadian analysis, it was revealed that the role of the family in the formation of aspirations was greater in the Canadian model. These findings had been anticipated by a review of the relevant literature and by the placement of American and Canadian society in the stratified cell of the typology developed in chapter three. American society was located more towards meritocracy than Canadian society. The Wisconsin data was viewed as representing United States society while the Ontario data was regarded as representing English Canadian society. Ontario was regarded as the proto-typical Canadian province.

Secondly, when boys were compared with girls interesting regularities emerged. For each of the grades the model explained more of the variance in LEA for girls than for boys and less of the

variance in LOA for girls than for boys. In grade 12 the model explained 41% of the variance in boys LEA and 22% of the variance in boys LOA. For girls these figures were 55% and 19% respectively. In grade 10 the model explained 48% of boys LEA and 26% of boys LOA. For girls the comparable figures were 57% and 22% respectively. Similarly, for grade eight the model explained a greater amount of the variance in girls LEA than boys LEA and a smaller amount of variance in girls LOA than boys LOA. (59% in LEA and 24% on LOA for boys as opposed to 60% in LEA and 17% in LOA for girls). This finding is largely accounted for by the fact that SOI is more strongly related to LEA for girls than for boys and is less strongly related to LOA for girls than for boys. In each grade p5,4 is stronger for girls while p6,4 is weaker. These findings may be interpreted as suggesting that the role of the family is even greater for girls than for boys and that a mother's aspiration for her daughter and her daughter's aspirations are more closely related than the mother's aspirations for her son and her son's aspirations. It is also interesting to note that as earlier grades are examined the difference in the explained variance between boys and girls becomes less. Again, this is largely due to the decrease in family influence in the later grades for boys. Family influence continues to remain a very strong factor for girls in each grade.

A third significant finding in the comparison of boys and girls was that the direct effect of academic achievement upon

LOA and LEA was weaker for girls than for the boys, but that the indirect effect through SOI, with the exception of grade 8, was stronger for the girls than for the boys. It appears that academic achievement, for boys, directly results in enhanced educational and occupational aspirations but for the girls must be accompanied by some parental encouragement before enhanced aspirations are formed. A fourth finding was that with the exception of grade 8 the effect of SES upon SOI was greater for girls than for boys. This finding was taken to suggest that the SES effect for boys manifests itself fairly early in a child's educational career but that the SES effect for girls, although stronger, comes into play later in her educational career. The differential timing of the SES effect may partly account for the fact that more girls graduate from high school than boys but fewer go on to university. It is at this point that SES intercedes for the girls whereas it has already taken its toll on the boys leaving the final grade as a survival category for the boys. A final significant boy and girl comparison is that for grades 8 and 10 mental ability is more strongly related to academic performance for the girls than for the boys. In grade 12 this difference reverses and mental ability is more strongly related to academic achievement for the boys. This finding confirms the well-established proposition that girls in high school make better use of their genetic endowment as they progress through school. However, by grade 12 as attrition

takes its toll on the boys, and as the reality of going to work or on to some form of post secondary education intercedes, the relationship between mental ability and achievement becomes stronger for boys.

The comparison across grades also revealed some interesting regularities. First, for both boys and girls, the earlier the grade the greater the variance explained in IEA. The explained variance for boys went from 41% to 48% to 49% while for girls it went from 55% to 57% to 60% as we descend school grades. This finding was largely attributed to the greater effect of SOI upon LEA as we went from grade 12 to grade 10 to grade 8 for both boys and girls. $P_{5,4} = .561, .627, .690$ for boys and $.691, .695, .719$ for girls respectively. Hence, the earlier the grade the greater the family effect. A third finding as we examine earlier grades is that the indirect effect of academic achievement through SOI becomes stronger for both boys and girls. The $P_{3,4}$ for boys in each grade is $.123, .173$ and $.361$ and for girls is $.198, .226$ and $.227$. Therefore, the earlier the grade the greater the effect that academic achievement has upon the mother's aspirations for her children. While the indirect effect strengthens as we descend grades, the direct effect for boys, at least, weakens. The $P_{3,5}$ for each grade is $.211, .165$ and $.157$ respectively. The final across-the-grades finding has already been mentioned - SES has a differential timing effect upon boys and girls.

Self Concept of Ability and Program of Study as Additional
Intervening Variables in the Process of Aspiration Formation

Having reviewed the findings of Chapter IV, we now turn our attention to the purpose of the present chapter. In this chapter a more powerful model explaining the formation of educational and occupational aspirations will be developed. By the addition of two new variables we hope to be able to account for even more of the variance in educational and occupational aspirations of Ontario high school students.

The extended model will include a new social-psychological variable and a "structural" variable as intervening variables in the process of aspiration formation. The addition of new social-psychological variables has been alluded to by researchers in the field as a possible source of mechanisms of mediation in a more powerful causal model. (Haller and Portes, 1973:87; Duncan, Featherman and Duncan, 1972:12-13; Sewell, Haller and Ohlendorf, 1970:1024). Haller and Portes (1973:77) have attempted to introduce structural considerations into the overall process of occupational status attainment.

A student's self concept of his ability is the social-psychological variable that will be introduced into the model. For our purposes the discussion of self concept of ability centers around two topics: the formation of a self concept of ability and the effect of that self concept. Concerning the formation of

a general self concept, Charles Horton Cooley (1964) developed the position that one's self concept is the result of what the person believes others think of him. Thus:

In a very large and interesting class of cases the social reference takes the form of a somewhat definite imagination of how one's self - that is any idea he appropriates - appears in a particular mind, and the kind of self-feeling one has is determined by the attitude toward this attributed to that other mind. A social self of this sort might be called the reflected or looking-glass self:

"Each to each a looking-glass
Reflects the other that doth pass."

As we see our face, figure, and dress in the glass, and are interested in them because they are ours, and pleased or otherwise with them according as they do or do not answer to what we should like them to be; so in imagination we perceive in another's mind some thought of our appearance, manners, aims, deeds, character, friends, and so on, and are variously affected by it.
(Cooley, 1964:183-184)

Cooley's concept of the looking-glass self illustrates the position that one's self concept is the outcome of a number of interactions during which a self concept is formed which mirrors the opinions that others have of the person. The formation of a self concept was further elaborated upon by George Herbert Mead (1967) who pointed out that children at play "take the role of the other" and thus are able to adopt the orientations that "significant others" have of the child. These orientations then become the child's self concept. Mead also introduced the concept of "the generalized other" which suggests that one's self concept is the overall result of the

attitudes of the social group as a whole to which the individual belongs:

The organized community or social group which gives to the individual his unity of self may be called "the generalized other". The attitude of the generalized other is the attitude of the whole community. Thus, for example, in the case of such a social group as a ball team, the team is the generalized other in so far as it enters - as an organized process or social activity - into the experience of any one of the individual members of it. (Mead, 1967:154)

Kinch (1963:482) has formalized the basic postulates concerning the formation and the effect of a self-concept as follows:

1. The individual's self concept is based on his perception of the way others are responding to him.
2. The individual's self concept functions to direct his behavior.
3. The individual's perception of the responses of others toward him reflects the actual responses of others toward him.

Proposition number 2 does not concern us at the moment because it refers to the effect of a self-concept which we will deal with shortly. Proposition number 1 represents the heart of the theoretical basis for the formation of a self-concept. However, an individual may have a number of self-concepts. The one that is most relevant for our purposes is the student's self concept of his academic ability. It is a student's self concept of his or her ability that would be salient for the student role, and

for its effect and relationship to educational aspirations.

Research by Brookover (1964:473; 1962:74) supports the central proposition specified above. Brookover found that a student's self concept of his ability is strongly related to the perception that the student has of four significant others toward his self concept of ability. These four significant others were mother, father, teacher and peers. However, as Gergen (1971: 41-42) points out, experimental studies provide more convincing evidence that one's self concept is related to what others think of the individual. In these studies (cf. Videbeck, 1960) significant others modify their behavior toward an individual and the individual's self-concept changes accordingly. An anecdote recited by Kinch makes the point nicely:

A group of graduate students in a seminar in social psychology became interested in the notions implied in the interactionist approach. One evening after the seminar five of the male members of the group were discussing some of the implications of the theory and came to the realization that it might be possible to invent a situation where the "others" systematically manipulated their responses to another person, thereby changing that person's self-concept and in turn his behaviour. They thought of an experiment to test the notions they were dealing with. They chose as their subject (victim) the one girl in their seminar. The subject can be described as, at best, a very plain girl who seemed to fit the stereotype (usually erroneous) that many have of graduate student females. The boys' plan was to begin in concert to respond to the girl as if she were the best-looking girl on campus. They agreed to work into it naturally so that she would not be aware of what they were up to. They drew lots to see who would be the first to date her. The loser, under the pressure of the others, asked her to go out. Although he

found the situation quite unpleasant, he was a good actor and by continually saying to himself "she's beautiful, she's beautiful..." he got through the evening. According to the agreement it was now the second man's turn and so it went. The dates were reinforced by the similar responses in all contacts the men had with the girl. In a matter of a few short weeks the results began to show. At first it was simply a matter of more care in her appearance; her hair was combed more often and her dresses were more neatly pressed, but before long she has been to the beauty parlor to have her hair styled, and was spending her hard-earned money on the latest fashions in women's campus wear. By the time the fourth man was taking his turn dating the young lady, the job that had once been undesirable was now quite a pleasant task. And when the last man in the conspiracy asked her out, he was informed that she was pretty well booked up for some time in the future. It seems there were more desirable males around than those "plain" graduate students. (Kinch, 1963:482-483)

Since self-concept of ability was not one of the final dependent variables in the study from which our data is drawn, there are not many questions attempting to uncover the antecedents of self-concept of ability. Therefore, self-concept of ability could not be related to the perceptions that significant others had of the student as a learner. However, this is not much of a loss as our main emphasis will be upon self-concept of ability as an independent variable which will be related to the formation of educational and occupational aspirations. We have referred to this as the effect of a self-concept which will be discussed shortly. First, however, we can relate self-concept of ability to the two exogenous variables in our model. Self-concept of ability has been found to be associated with both mental ability (Brookover, 1962:73) and SES (Brookover,

1962:75). Therefore, after we consider the enactment of a self-concept of ability we will indicate the causal paths into and out of self-concept of ability. On the one hand self-concept of ability will be related to our two exogenous variables and on the other hand it will help determine the formation of educational and occupational aspirations. Thus, we can see that self-concept of ability is an intervening variable in our model of aspiration formation.

Research has demonstrated that the self-concept in general has a wide range of behavioral outcomes or consequences (cf. Brookover, 1962:7-12; Wylie, 1961; For reviews of the literature in general; Brookover, 1969; 106 for a review of the specific literature on self-concept of ability and academic achievement; and Gordon, 1971: 77-80 for a review of the literature on self-concept and aspiration). Early Canadian research, in fact, conceptualized self-image as central to the process of aspiration formation (Forcese and Siemens, 1965:23-24). For our purposes we are interested in the impact of self-concept of ability upon educational and occupational aspirations. Initially, however, self-concept of ability may affect other variables in the model. Research by Brookover (1962:37-42) indicates that self-concept of ability has an effect independent of intelligence upon academic achievement. Accordingly, we will hypothesize that the higher the self-concept of ability the higher the academic achievement of the student. Research has also demonstrated that self-concept of ability is directly linked to educational aspirations (Brookover,

1962:76; Gordon, 1971:80). Accordingly, we will hypothesize a direct connection between self-concept of ability and educational and occupational aspirations such that the higher the self-concept of ability the higher the educational and occupational aspirations of the student.

Thus, in our model, SES and mental ability will be treated as antecedents of self-concept of ability which will, in turn, be treated as an antecedent of academic achievement and educational and occupational aspirations. As Brookover (1964:469) points out "In this context, the self is the intervening variable between the normative patterns of the social group or the role expectations held by significant other, on the one hand, and the learning of the individual, on the other." To a certain extent there may be some feedback between self-concept of ability and academic achievement and between self-concept of ability and educational and occupational aspirations. It may be the case that the higher the academic achievement and the higher the educational and occupational aspirations the higher the self concept. Unfortunately, our path models do not accomodate this feedback since they are recursive. Therefore, it is necessary to keep this limitation in mind in the interpretation of the findings. However, there is considerable evidence that the main direction of influence is from self concept to behavioral outcomes and aspirations.

A student's program in high school is the second new

variable that will be added to the model in our attempt to increase the variance explained in educational and occupational aspirations. In Ontario, at the time the survey research was carried out, there were six basic programs in three branches: commercial; science, trades and technology; and arts and science. In each branch there was both a four year and a 5 year program. In addition, a few students were in two or one year programs, and a small number were in schools which, on an experimental basis, had changed to offering advanced and general courses rather than programs. Table 5-1 on page 138 presents the distribution of grade 10 and 12 students in programs. As the table shows, the Arts and Science 5 year program is the modal category particularly for the students in French and bilingual schools. The Arts and Science 5 year program is the normal stream for university entrance preparation although any 5 year program qualifies a student for university entrance. Official Ontario Department of Education publications recognize the impact of these programs on educational intentions. For example, it has been noted that:

"... an Ontario Department of Education publication states that the five-year programme in the Arts and Science Branch "makes provision for pupils of good general ability who desire to proceed to Grade 13 ...to qualify for admission to a university course..." (1966:12). About the four-year Programme in the same branch it indicates that it is designed for those who "do not plan to proceed to university or other studies that require standing in Grade 13 subjects..." (p.29)." (Breton, 1970:21)

The rationale for this system of streaming can only be, on the one hand, to allocate students to programs in accordance

TABLE 5-1

DISTRIBUTION OF STUDENTS IN PROGRAMS

	<u>Grade 12</u>				<u>Grade 10</u>			
	<u>English</u>		<u>French</u>		<u>English</u>		<u>French</u>	
	N	%	N	%	N	%	N	%
Commercial, 4 year	383	13.4	23	14.2	340	11.5	45	18.1
Commercial, 5 year	100	3.5	1	.6	113	3.8	2	.8
S, T & T, 4 year	340	11.9	4	2.5	380	12.8	18	7.2
S, T & T, 5 year	177	6.2	1	.6	210	7.1	3	1.2
A & S, 4 year	175	6.1	5	3.1	118	4.0	11	4.4
A & S, 5 year	1352	47.2	119	73.5	1168	39.4	153	61.4
2 year	3	.1	0	.0	72	2.4	3	1.2
1 year	5	.2	1	.6	0	.0	0	.0
mostly advanced courses	86	3.0	0	.0	108	3.6	0	.0
about an equal number of advanced and general courses	24	.8	0	.0	43	1.5	0	.0
mostly general courses	77	2.7	0	.0	88	3.0	2	.8
missing data	140	4.9	8	4.9	324	10.9	10	4.0
Totals:	2862	100.0%	162	100.0%	2964	100.0%	249	100.0%

with their abilities, performance and interests and, on the other hand, in the light of these qualities to prepare the student for an appropriate selection of post high school occupational or educational experience. Given this rationale, and the system of streaming, it is not surprising to find program of study related to either educational or occupational aspirations. Programs were intended to be structural facilitators in the process of occupational and educational attainment. The more interesting point is, of course, on what bases do students come to find themselves in the various programs of study. Our research will attempt to relate program of study to various social background characteristics and thus show how program of study mediates between these characteristics and educational and occupational aspirations.

Research has been performed in Canada upon the relationship between program of study and educational aspirations (cf. Breton, 1970; Breton, 1972). The central finding of this analysis appears to be that "... an adolescent's views about his class of destination can be explained as much, if not more, by the position he occupies, during his formative years, in the school stratification system as by his class or origin" (Breton, 1970:17). After reviewing the nature of the internal stratification system of the school, (i.e. the system of programs) Breton finds a relationship between program of study and educational plans. "Boys and girls in non-terminal programs are more likely to plan to continue beyond high school than those in terminal ones" (Breton, 1970:22). Since mental

ability and SES were found to be associated with program of study they were held constant and the results revealed "... not only that the effect of program of study on educational plans remains when father's occupational status and mental ability rank are controlled but that its effect is substantially larger than either of these variables" (Breton, 1970:24).

I would argue that the calculation of effect parameters and the interpretation of these as indicating that the effect of programs is "substantially larger" than either SES or mental ability, reflects a basic conceptual flaw in the analysis. It is not the case that program, mental ability and SES are completely independent variables competing in the explanation of variance in the dependent variable, educational aspirations. Rather, mental ability and SES are determinants of program which is then related to educational aspirations. As such, program intervenes between certain social background characteristics and educational intentions. It may be appropriate to say that of the three variables program is the best predictor of post secondary educational intentions but it certainly is unjustifiable to claim that its effect is "substantially larger." SES has an indirect effect upon educational aspirations which is felt through program.

Breton appears to at least partially realize this point when he concerns himself with factors in the allocation of students to programs - "It was mentioned above that mental ability rank and class

of origin are important factors in this allocation process. However, even though the observed correlations are significant, they are far from perfect " (Breton, 1970:25). Breton then notes the importance of various considerations as reported by high school principals.

TABLE 5-2

IMPORTANCE OF DIFFERENT CRITERIA IN ASSIGNING STUDENTS
TO PROGRAMMES OF STUDY

	Very Important (Percent)	N*
Intelligence or achievement test	27.0	(2361)
School marks or grades	63.0	(2372)
Judgement of teachers or principal	52.0	(2394)
Judgement of guidance counsellor	36.0	(2070)
Parents' wishes	9.0	(2354)
Interest test	11.0	(2016)
Student's expressed interest in certain subjects or career	31.0	(2263)

* The schools with only one programme of study are not included in the calculation of these percentages. The "no answers" are also excluded.

SOURCE: Breton, 1970:22

The table on page 141 combines the influence of certain significant others, principals, teachers, guidance counsellors, parents with certain performance variables, mental ability and school grades. Grades are stated to be important in allocating students to programs followed by the judgements of teachers or principals, and listed third are the judgements of school guidance counsellors. In establishing our model of occupational and educational aspiration formation we will have occasion to examine from the student's point of view who the significant others in educational decision making are regarding programs and regarding future plans. For the moment it is sufficient to note that a vastly different scenario from that given by Breton is indicated. An additional problem with such a categorization is that social background variables like socio-economic origin are not even mentioned by the principals, but we know SES is related to program of study.

In the model that will be illustrated shortly, program of study will be related directly to educational and occupational aspirations, on the one hand, and on the other hand will be associated with social background characteristics which are regarded as possible determinants of program of study. Thus, program of study is regarded much like self-concept of ability; that is, as an intervening variable between the exogenous variables in the model and the dependent variables, educational and occupational expectations.

An Extended Model

Figure 5-1 below presents the extended model which has incorporated self-concept of ability and program of study as intervening variables in the process of expectation formation.

FIGURE 5-1

An Extended Model of Expectation Formation Incorporating
Self Concept of Ability and Program of
Study as Intervening Variables

Socio-economic status and mental ability are the two exogenous variables in the model. As the preceding discussion indicated both are related to self-concept of ability. As research demonstrated, the higher one's social class and the higher one's genetic potential, the higher one's self-concept of scholastic

ability (cf. Brookover, 1962). Mental ability is also related to academic achievement and program. It is expected that the higher an individual's intelligence, the more able he is to achieve academically. It is also expected that, based upon the rationale for a differentiated system of programs, that the higher one's mental ability the greater the likelihood of being in one of the university entrance streams rather than in a terminal or occupational program. Again, research has established both of these relationships (cf. Sewell, Haller and Ohlendorf, 1970; Breton, 1970). Similarly, socio-economic status is also related to program of study. Research by Breton (1970) has demonstrated that the higher a student's social class the greater the chance of entering a university preparation stream. The final outgoing path from SES is to mother's aspiration for her child which is regarded as an indicator of family influence. It is known that SES and mother's aspiration for her child are related such that the higher the SES, the higher the mother's aspiration for her child (Sewell and Shah, 1968a; 1968b).

A student's self-concept of his or her ability is associated directly, as an antecedent, with four other variables. First, following Brookover (1962), it is hypothesized that self-concept of ability will be strongly related to academic achievement. The higher the self-concept of ability, the more confidence the student has at playing the grading game, and thus the higher the achieved school grades. Secondly, self-concept of ability is

associated directly with both level of educational expectation and level of occupational expectation. Research by Brookover (1962), and Gordon (1971) and Forcese and Siemens (1965) support these paths. It is anticipated that the higher a student's self-concept of his ability, the more willing he will be to assume the challenge of a higher level of educational attainment or a higher level of occupational attainment. Finally, self-concept of ability is seen as being a determinant of program of study. The higher the self-concept of the student, the more likely he is to enter and stay in a university preparatory stream.

The antecedents of academic achievement are, as we have shown, mental ability and self-concept of ability. In turn, academic achievement helps determine four other variables. First, academic achievement acts as one of the determinants of a mother's aspiration for her child. The mother takes note of the child's exhibited performance in school and modifies her aspirations accordingly. Secondly, we expect academic achievement to be related to program of study. Academic achievement is like mental ability in that it represents a performance dimension. The good students, if the system is rational, should be sorted into the more difficult five year programs. Thirdly, academic achievement is directly related to both level of educational expectation and level of occupational expectation (cf. Sewell, Haller and Ohlendorf, 1970).

There are a few problems with the measurement of academic achievement and its inclusion in our model of aspiration formation.

First, the problem of feedback has already been discussed. Secondly, achievement was not measured by a standardized test but by school reported high school grades. Thus, these grades were not awarded on uniform criteria, but on the evaluations of many different teachers. Excerpts from letters sent by school principals concerning the reporting of high school grades illustrate the wide variations possible in the awarding of school marks. One principal replied:

Since, in our school, we operate a program of continuous progress, where the individual progresses at his own rate, competition is on a limited scale. Formal examinations testing a student's ability to memorize content are non-existent. We place much emphasis on emotional and social development along with academic skills or in other words, "the whole child". On the attached sheet we have attempted to summarize our evaluation of these individuals.

Another principal noted that:

The students at the Roseneath Centennial School are evaluated with respect to their academic achievement through a continuous series of tests, day-to-day efforts, projects and attitudes. The final report is anecdotal and is based on the child's progress with respect to his ability. We do not use grades or marks as we feel that these do not give an honest evaluation of the individual.

A third problem concerning the inclusion of academic achievement in a path model involves the timing of the achievement and the timing of program selection. Ideally, one would want grade eight grades to be related to program selection in grade nine in such a causal model. However, the data that are available from the Porter and Blishen study are academic achievement as measured by high

school marks in grades seven (for the grade 8 sample), nine (for the grade 10 sample) and 11 (for the grade 12 sample). Expected program of study was asked of the grade eights and actual program of study was asked of the grade 10 and 12 students. The analysis was performed on grade 10 and 12 students only and thus their actual program of study was related to their grades in the previous school year. To a certain extent this treatment may capture the relationship between academic achievement and program change in later high school years. In addition, grade 7 school reported grades were cross tabulated against the expected program of study as reported by grade 8 students. Results revealed a fairly strong relationship with those students attaining high grades expecting primarily to enter 5 year programs and those attaining low grades expecting primarily to enter four year programs. For example, 90% of grade 8 high achieving students in grade 7 expected to enter a 5 year program with only 10% of high achieving students expecting to enter four year programs. On the other hand, 38% of those students getting the lowest grade expected to enter 5 year programs, with 62% of low achievers expecting to enter 4 year programs. In other words, ideal data may indicate a stronger relationship between academic achievement and program of study than that shown by the path models presented later. Although this relationship may be somewhat stronger it is doubtful that it would approach the magnitude of the relationship between family influence and program of study. Therefore, there is no reason to alter the major findings of the analysis.

A mother's aspiration for her child is, on the one hand, affected by the student's academic achievement, which reflects a performance dimension, and by the student's origin status, which reflects an ascribed dimension and, on the other hand, affects the student's choice of program and the level of educational and occupational expectation of the student. A mother's aspiration for her child is regarded as an indicator of family influence. Cross tabulations, based upon the study data, have revealed that mother's aspirations for the child as reported by the child are highly correlated with mother's aspirations for the child as reported by the mother. Therefore, we have some indication that the data received are reliable. In addition, mother's aspirations correlate very closely with father's aspirations for the student. Hence, mother's aspiration is considered as an indicator of family influence.

The family is singled out for inclusion in the model because a number of other questions overwhelmingly identified the family as the most important significant other regarding educational decision making. For example, students in each grade were asked "In making plans for next fall, who is helping you most?" Of grade 8 students in English schools, 28.3% replied father and mother equally, 13.9% replied mother, 6.9% father, 9.3% teacher, 4.2% school principal or vice-principal, 6.3% guidance counsellor, 4.8% close friends, 8.7% brothers and sisters and 12.4% replied no one. Combining these percentages to yield the total influence of the three most frequently mentioned

categories of significant others shows the predominance of the family - family 57.8%, school 19.8%, peers 4.8%. The data for grades 10 and 12 support the position that the family is the locus of influence regarding educational advice and help. A similar but more general question "Who helps you most in thinking about your future education?" produces the same result. The family emerges as the source of the most salient significant others.

This proposition is further supported by the results to other questions. Students were asked "How much do you discuss your hopes for future education with your parents?" and "How much do they help you in thinking about these hopes for your future education?" Response categories were: not at all, some and very much. These questions were repeated for teachers and guidance counsellors together and for close friends. Each pair of questions were combined into a 1 - 7 scale where 7 represented "very much" answers to both questions. This reflects high influence. As table 5-3 on page 150 shows, parental influence dominates.

In a parental interview, parents of students in grade 8, largely mothers, were asked "How helpful were each of the following to (student) in making the decision about his/her program for this fall - a lot, some or no help at all?" Table 5-4 on page 151 indicates that discussions within the family had the most impact upon the student.

TABLE 5-3

HIGH RELATIVE INFLUENCE OF SIGNIFICANT OTHERS ON FUTURE EDUCATION

	<u>Grade 8</u>	<u>Grade 10</u>	<u>Grade 12</u>
Parental	14.9%	12.4%	13.2%
School	2.1	2.4	3.1
Peers	6.6	7.0	12.6

For the above reasons family influence is regarded as an important determinant of program of study and of the student's educational and occupational expectations. Mothers' aspiration for the student is the variable used to indicate this dimension. Accordingly, direct paths are hypothesized to program and to educational and occupational expectations. To the extent that a mother's aspirations for her child reflect the academic achievement of the child, this represents a performance influence; to the extent that the mother's aspiration for her child represents a reflection of the family's socio-economic background, this variable represents an ascribed rather than achieved influence.

Program of study is the final intervening variable in the model. As we have indicated, program is determined by both ascriptive and achieved factors. Socio-economic status representing the ascribed

TABLE 5-4

PERCENTAGE OF PARENTS RESPONDING THAT THE FOLLOWING HELPED A LOT

	Parents of Students in English Schools	
	N	%
1. Discussions within the family	327	38.2
2. Personal interviews with public school teachers and principals	158	18.5
3. Printed material from school	84	9.8
4. Television, radio or newspaper	17	2.2
5. Home and school meetings (PTA)	14	1.6
6. Family friends	38	4.4
7. Guidance counsellor	72	8.4
8. High school counsellor	38	4.4
9. Child's own friends	64	7.5

influence, has a direct effect upon program and an indirect effect through mother's aspiration. Mental ability and academic achievement, representing performance influences, both have direct effects upon program. In addition, it is expected that self-concept of ability will be directly related to program of study. On the other hand, for reasons discussed previously, it is expected that program of study will affect both educational and occupational expectations.

Again, there may be some feedback between aspirations and program which is not accommodated by the model.

In summary, both level of educational expectation and level of occupational expectation are influenced directly by four factors: family influence, program, self-concept of ability and academic achievement. The exogenous variables operate indirectly through the intervening variables as indicated by the model.

Operationalization

- X₁ Mental ability (MA). Measured by the Institute for Personality and Ability Testing (IPAT) Test of "G". culture fair scale 3, form A. Prepared by R. B. Cattell and A.K.S. Cattell. This test is based only upon symbolic manipulations; there is no verbal component which tends to be socially biased against lower SES respondents. Therefore, the IPAT test is likely to be less biased against lower SES respondents but not completely free of bias. The entire score range was used in calculating the correlation matrix which produced the path coefficients.
- X₂ Socio-economic Status (SES). Measured by placing father's occupation on the two digit Blishen (1967) scale. Other measures of SES were available but the 2 digit Blishen score correlated more strongly with the other variables in the model. See Appendix C for the correlation matrix of all possible indicators.
- X₃ Self Concept of Ability (SCA). Following Brookover (1962) a student's self concept of ability was captured by asking 8 questions each comprised of a 5 point ordinal scale and aggregating the responses to form a scale ranging from 8 to 40. Brookover (1962:15-16) calculated Guttman scale type scores and a conventional summated score. Since there

was little disparity between the two when correlated with academic achievement the summated score was calculated and used in the research under discussion. The questions were: (1) "How do you rate yourself in school ability compared with your close friends?" (2) "How do you rate yourself in school ability compared with those in your class at school?" (3) "Where do you think you rank in your class in high school?" (4) "Do you think you have the ability to complete university?" (5) "Where do you think you would rank in a class at university?" (6) "In order to become a doctor, lawyer, or university professor, work beyond four years of university is necessary. How likely do you think it is that you could complete such advanced work?" (7) "Forget for a moment how others grade your work. In your own opinion, how good do you think your work is?" (8) "What do you expect your grades to be this year?"

- X₄ Academic Achievement (AA). Measured by percentage grade for each student as reported by the high school authorities. Self reported grades were also available but school reported grades were selected as the indicator of academic achievement as they are probably more reliable. Correlations presented in Appendix C show that school reported grades correlate more strongly with other variables in the model.
- X₅ Family Influence (FAM. INFLU.). Family influence is indicated by mother's educational aspiration for the student as reported by the student. The student reported information was found to correlate highly with the parental reported data on this question. Instead of a threefold distinction between work, other post-secondary aspirations and university, as was used in the previous chapter for comparative purposes, a more refined scale of educational aspirations was developed. The scale ranges from 1 to 10 and represents a combination of two levels of educational aspiration questions: (1) "How far would your mother like you to go in high school?" Response categories for this question were the appropriate school grades. (2) "Then, what would your mother like you to do?" Response categories were: go to work; apprenticeship or

trade school; teacher's college or nursing school; community college; university but not graduate; graduate from university; post graduate studies. In general, responses were combined so that one year more of education represents an increment of one on the scale. Thus to leave school after grade 8 is indicated by a 1 on the scale while to complete grade 13 and take post graduate training is indicated by a 10. See Appendix D for complete details on the scale construction.

- X₆ Program of Study (PROG.). Grade 10 and 12 students were asked to specify the branch in which they were currently enrolled - commercial, science, trades and technology and arts and science. Each branch was divided into a five year and a four year program. For analysis purposes these streams were collapsed into two: 4 year programs, those not eligible for university attendance, and 5 year programs, those eligible for university attendance.
- X₇ Level of Educational Expectation (LEE). Students were asked (1) "Not everyone expects to go as far in high school as he would like. Considering your ability, marks, ambitions and family finances, how far do you actually expect to go after leaving high school?" Response categories were identical to those indicated previously for mother's post secondary aspirations. Both questions were combined to form a 1 - 10 scale as were the mother's educational aspirations questions. See operationalization of X₅ and Appendix D for details. Level of educational expectation rather than level of educational aspiration was selected as the dependent variable because expectations have the fantasy component removed and are more realistic. As Appendix C shows expectations correlated more strongly with other variables in the model than did aspirations.
- X₈ Level of Occupational Expectation (LOE). Students were asked "Everyone does not end up doing the job he or she likes. Considering your ability, marks, ambitions and family finances, what job do you think you will actually end up doing?" Responses were coded on the Blishen (1967) scale of socio-economic status. Expectations rather than aspirations were selected for the reasons indicated above concerning educational expectations and for those given in the previous chapter.

Findings

Table 5-5 below presents the correlation matrix for grade 12 boys in English schools and diagram 5-2 on page 156 presents the model and the path coefficients calculated from these correlations.

TABLE 5-5

CORRELATION MATRIX FOR GRADE 12 BOYS IN ENGLISH SCHOOLS

	MA	SES	SCA	AA	FAM. INFLU.	PROG.	LEE
	X ₁	X ₂	X ₃	X ₃	X ₅	X ₆	X ₇
X ₁	-						
X ₂	.142	-					
X ₃	.284	.204	-				
X ₄	.297	.059	.600	-			
X ₅	.280	.252	.389	.199	-		
X ₆	.338	.247	.309	.143	.618	-	
X ₇	.287	.246	.574	.331	.675	.637	-
LOE X ₈	.262	.273	.509	.284	.451	.434	.626

N = 1456

As the diagram indicates, our extended model is much more

successful than the Wisconsin model in explaining variance in LEE and LOE. The Wisconsin model explained 41% on the variance in LEE and 22% of the variance in LOE for Ontario grade 12 boys in English schools. The extended model explains 63% of the variance in LEE and 36% of the variance in LOE for the same group of students.

DIAGRAM 5-2

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 12 Boys in English Schools

It appears that our extended model with two new intervening variables and a more refined measure of level of educational expectation represents a more powerful specification of the process of aspiration formation than that found in the literature.

The variance in LEE is largely accounted for by the three factors - family influence ($p_{7,5} = .346$), self concept of ability ($p_{7,3} = .330$), and program ($p_{7,6} = .319$). Academic achievement only exerts a very weak direct effect upon LEE ($p_{7,4} = .019$). The variance in LOE is accounted for by the same three variables but the order of priority has changed - self concept of ability is first with $p_{8,3} = .382$, program is second with $p_{8,6} = .209$ and family influence is third with $p_{8,5} = .175$. Therefore, the two new variables that were added to the model are shown to be important in the process of expectation formation. Let us examine the determinants of each of the three main influences upon educational and occupational expectations to ascertain the relative effects of ascribed versus achieved factors in the process of aspiration formation or, in our case, expectation formation.

Firstly, family influence is shown to be more the result of the family's position in the class structure ($p_{5,2} = .241$) than the result of academic achievement on the part of the student ($p_{5,4} = .185$). Secondly, program of study is affected much more strongly by family influence ($p_{6,5} = .533$) than by performance considerations like academic achievement ($p_{6,4} = -.065$) and mental ability ($p_{6,1} = .176$). Likewise self concept of ability is only weakly related to program ($p_{6,3} = .075$), as is the direct path between SES and program ($p_{7,2} = .076$). It must be remembered, however, that the effect of SES on program is an indirect one

through family influence, and that this effect is a very strong one.

These results can be interpreted to suggest that the role of the family in the formation of educational and occupational expectations is a very strong one indeed, and that it dominates the role of achieved criteria. The rationale for programs is that they should be an allocative mechanism whereby the more able students get sorted into the more difficult programs, and in these programs learn and become prepared for advanced educational careers. As the data above indicate, the family exerts a strong direct influence upon educational and occupational expectations and also exerts a very strong indirect influence through its strong influence upon program selection. It appears that the system of differentiated programs in Ontario high schools merely serves to perpetuate the inequalities found in the society in general. The family, through its direct effect upon the level of educational expectation and the level of occupational expectation, and through its indirect effect upon program selection serves as a prime mechanism of status transmission.

Next we will examine the process for grade 12 Ontario girls in English schools. Table 5-6 on page 159 presents the correlation matrix for grade 12 Ontario girls and diagram 5-3 on page 160 presents the model and the path coefficients calculated from these correlations. Table 5-7 on page 161 presented a summary of the path coefficients for all comparison groups but with such a complicated model it may be

easier to compare the diagrams.

TABLE 5-6

CORRELATION MATRIX FOR GRADE 12 GIRLS IN ENGLISH SCHOOLS.

	MA	SES	SCA	AA	FAM. INFLU.	PROG.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇
X ₁	-						
X ₂	.162	-					
X ₃	.244	.192	-				
X ₄	.257	.140	.640	-			
X ₅	.293	.270	.342	.242	-		
X ₆	.366	.229	.238	.217	.600	-	
X ₇	.310	.298	.448	.328	.756	.654	-
LOE X ₈	.163	.163	.355	.273	.378	.287	.500

N = 1400

As diagram 5-3 shows, the model accounts for more of the variance in grade 12 girls LEE than did the Wisconsin model (67% versus 55%). It does not, however, account for much more of the variance in LOE (21% versus 19% for the Wisconsin model). Perhaps there are some variables which are unique to girls and must be included in such models to account for the formation of occupational

expectations.

DIAGRAM 5-3

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 12 Girls in English Schools

In any case, family influence, program and self concept of ability are the salient variables affecting LEE. As with the grade 12 boys, family influence is the most important ($p_{7,5} = .505$) followed by program of study ($p_{7,6} = .301$), followed by self concept of ability ($p_{7,3} = .193$). Therefore, in comparing the grade 12 girls with the grade 12 boys it appears that the relative priorities of SCA and program have reversed for the girls. For the girls it is not so much that a high self concept of ability will generate high educational expectations as it is the program of study that will result in higher educational expectations. Academic

achievement, as with the boys, does not directly affect the level of educational expectation.

Concerning LOE, the influence priorities of the various variables have altered as well. For the boys, in terms of magnitudes, the order was self concept, program and family influence. For the girls, the order is family influence ($p_{8,5} = .244$) and self concept of ability ($p_{8,3} = .215$). Both program and academic achievement have little effect upon LOE. These results demonstrate the primacy of the influence of the family in the formation of occupational expectations, particularly for girls.

TABLE 5-7

PATH COEFFICIENTS FOR ANTECEDENTS OF EDUCATIONAL AND OCCUPATIONAL EXPECTATIONS FOR EACH COMPARISON GROUP

Dependent Variable and Comparison Group	Independent Variables						R ²
	MA	SES	SCA	AA	FAM. INFLU.	PROG.	
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	
Grade 12 boys							
SCA X ₃	.260	.167	-	-	-	-	.11
AA X ₄	.138	-	.561	-	-	-	.38
FAM INFLU X ₅	-	.241	-	.185	-	-	.10
PROG X ₆	.176	.076	.075	-.065	.533	-	.42

		x_1	x_2	x_3	x_4	x_5	x_6	R^2
LEE	x_7	-	-	.330	.019	.346	.319	.63
LOE	x_8	-	-	.382	-.010	.175	.209	.36
Grade 12 girls								
SCA	x_3	.219	.157	-	-	-	-	.08
AA	x_4	.107	-	.614	-	-	-	.42
FAM INFLU	x_5	-	.241	-	.208	-	-	.12
PROG	x_6	.198	.054	-.035	.054	.527	-	.40
LEE	x_7	-	-	.193	.017	.505	.301	.67
LOE	x_8	-	-	.215	.060	.244	.076	.21
Grade 10 boys								
SCA	x_3	.259	.172	-	-	-	-	.11
AA	x_4	.141	-	.513	-	-	-	.32
FAM INFLU	x_5	-	.211	-	.241	-	-	.11
PROG	x_6	.086	.080	.016	.134	.503	-	.39
LEE	x_7	-	-	.355	-.014	.431	.229	.67
LOE	x_8	-	-	.309	.055	.209	.184	.35
Grade 10 girls								
SCA	x_3	.251	.148	-	-	-	-	.10

		x_1	x_2	x_3	x_4	x_5	x_6	R^2
AA	x_4	.196	-	.540	-	-	-	.39
FAM INFLU	x_5	-	.250	-	.290	-	-	.17
PROG	x_6	.132	.041	-.060	.110	.534	-	.39
LEE	x_7	-	-	.334	.008	.477	.204	.69
LOE	x_8	-	-	.266	.052	.271	.056	.27
French boys								
SCA	x_3	.135	.242	-	-	-	-	.09
AA	x_4	.141	-	.485	-	-	-	.28
FAM INFLU	x_5	-	.168	-	.142	-	-	.06
PROG	x_6	.066	.074	-.032	.155	.464	-	.29
LEE	x_7	-	-	.460	.053	.316	.157	.58
LOE	x_8	-	-	.283	.127	.154	.126	.25
French girls								
SCA	x_3	.224	.074	-	-	-	-	.06
AA	x_4	.182	-	.483	-	-	-	.31
FAM INFLU	x_5	-	.226	-	.317	-	-	.16
PROG	x_6	.119	-.059	.075	.035	.695	-	.57
LEE	x_7	-	-	.189	-.025	.653	.177	.75
LOE	x_8	-	-	.096	.052	.339	-.014	.16

When we examine the ascribed versus the performance influences for girls, we arrive at a very similar picture to that for the boys. Family influence is affected more by the status of the family in the class structure ($p_{5,2} = .241$) than by the school performance of the student ($p_{5,4} = .208$). This family influence, then, strongly and directly effects LEE ($p_{7,5} = .505$). Similarly, program of study is not determined so much by the performance dimensions of school achievement ($p_{6,4} = .054$) and mental ability ($p_{6,1} = .198$) as by family influence ($p_{6,5} = .527$). Hence, it can be seen that family influence has a double thrust, directly affecting LEE and LOE and indirectly affecting expectations through its strong effect upon program. Apparently, for girls, even more than for boys, the family acts as the mechanism of status transmission. Upper middle class girls are encouraged by their families to select university entrance programs, and they aspire to higher levels of educational and occupational attainment. Lower class girls, on the other hand, are encouraged to take terminal programs and accordingly, expect to achieve lower in the educational and occupational hierarchies.

Another interesting finding for both grade 12 boys and girls is that self concept of ability is so strongly related to academic achievement ($p_{4,3} = .614$ for girls and $.561$ for boys). This was anticipated from the literature and further supports the proposition that grades in school are not so much the result of pure learning or innate ability (i.e.: the paths from MA to AA

were only .107 for girls and .138 for boys), but are, at least in large measure, the result of the ability to accept the alleged importance of good grades. The higher the self concept of ability the more confidence the student has and the better he or she is able to meet the challenge of good grades.

The analysis of the data for grade 10 boys in English schools indicates much the same results as did the analysis of the data for grade 12 boys in English schools. As Diagram 5-4 on page 167 shows, a greater amount of variance in LEE is explained when the earlier grade is considered. The model explained 63% of the variance in the LEE of grade 12 boys and 67% of the variance in LEE of grade 10 boys. Although the order of the most salient direct effects upon LEE is the same in the grade 12 and the grade 10 models, the magnitudes have changed such that in grade 10, family influence is even more dominant ($p_{7,5} = .431$ in grade 10 and .346 in grade 12), and program of study is less dominant ($p_{7,6} = .229$ in grade 10 and .319 in grade 12). This finding seems to indicate that as a student gets closer to the end of his program of study, its role in the formation of his educational expectations is felt by the student. Earlier in his educational career, however, family influence becomes the most salient determinant of the students educational expectations.

About the same amount of variance is accounted for in LOE of grade 10 boys as was accounted for in LOE of grade 12 boys (35%

TABLE 5-8

CORRELATION MATRIX FOR GRADE 10 BOYS IN ENGLISH SCHOOLS

	MA	SES	SCA	AA	FAM. INFLU.	PROG.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇
X ₁	-						
X ₂	.154	-					
X ₃	.285	.212	-				
X ₄	.287	.112	.553	-			
X ₅	.366	.238	.456	.265	-		
X ₆	.325	.231	.361	.310	.596	-	
X ₇	.384	.294	.626	.367	.725	.609	-
LOE X ₈	.266	.272	.501	.338	.474	.437	.633
N = 1595							

versus 36%). The order of the variables, in terms of strongest effects, has changed. In grade 12, self concept of ability was first with $p8,3 = .382$, program was second with $p8,6 = .209$ and family influence was third with $p8,5 = .175$. In grade 10, the order is self concept of ability (.309), family influence (.209) and program (.184). This finding supports the position just outlined that family influence is more dominant earlier in a student's educational career but as the student advances towards high school

graduation, the role of his program becomes relatively more significant as regards the student's educational and occupational expectations.

DIAGRAM 5-4

Path Coefficients for Antecedents of Educational and Occupational Expectations for Grade 10 Boys in English Schools

When we consider the determinants of program of study for grade 10 students we arrive at a conclusion similar to that arrived at when the grade 12's were considered. Program of study is the result primarily of family influence ($p_{6,5} = .503$) rather than the result of exhibited performance ($p_{6,4} = .134$) or ability ($p_{6,1} = .086$). Therefore, the family makes its influence felt in a double manner - directly on LOE and LEE and indirectly on both through programs of study. Since there is still a strong

relationship between SES and family influence ($p_{5,2} = .211$) we can conclude that ascribed characteristics have much to do with the formation of educational and occupational expectations and that the family serves as a major mechanism of status transmission by acting directly upon the students LOE and LEE and by indirectly influencing the student's program selection.

Table 5-9 on page 169 presents the correlation matrix for Grade 10 girls in English schools and diagram 5-5 on page 170 presents the model and the path coefficients calculated from the correlation matrix. As diagram 5-5 indicates, the extended model accounts for much more of the variance in LOE and LEE than did the Wisconsin model presented in Chapter IV. The extended model accounts for 69% of the variance in LEE and 27% of the variance in LOE of grade 10 girls in English schools. The Wisconsin model explained only 57% and 22% respectively.

Diagram 5-5 will be simultaneously compared with diagrams 5-4 and 5-3. Table 5-7 is a summary of all the path coefficients for each comparison group. The first finding of interest to us is that the model for grade 10 girls explains more of the variance in LEE and less of the variance in LOE than did the model for grade 10 boys. This was also the case for the grade twelves. This fact is largely attributable to the greater effect of family influence for girls. A second finding is that a greater amount of variance is explained in the earlier grade. This was also the

case for boys. Apparently, relationships are stronger before drop-outs render the later grades' "survival" categories.

TABLE 5-9

CORRELATION MATRIX FOR GRADE 10 GIRLS IN ENGLISH SCHOOLS

	MA	SES	SCA	AA	FAM. INFLU.	PROG.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇
X ₁	-						
X ₂	.176	-					
X ₃	.277	.192	-				
X ₄	.345	.131	.594	-			
X ₅	.317	.288	.451	.323	-		
X ₆	.330	.221	.291	.298	.596	-	
X ₇	.352	.295	.613	.421	.752	.588	-
LOE X ₈	.212	.197	.435	.314	.441	.310	.525

N = 1363

A third finding concerns the relative priority, in terms of magnitude, of family influence, self concept of ability and program. For grade 10 girls, as was the case for grade 10 boys, family influence ranks first with $p_{7,5} = .477$, self concept of ability ranks second

with $p_{7,3} = .334$ and program ranks third with $p_{7,6} = .204$. Again, as was the case when the grade 12's were compared, family influence exerts a greater effect for girls ($p_{7,5} = .477$) than for boys ($p_{7,5} = .431$). This order of priority has changed from that for grade 12

DIAGRAM 5-5

Path Coefficients for Antecedents of Educational and Occupational Expectations for Grade 10 Girls in English Schools

girls where the order was family influence (.505), program (.301) and self concept of ability (.193). It is the case for the girls even more so than for the boys that as grade advances the effects of program of study sets in. Concerning our other dependent

variable, it appears that family influence ($p8,5 = .271$) and self concept of ability ($p8,3 = .266$) are the only two significant paths into LOE. This is different from the boys where the program path, $p8,6$, is significant but is the same for the grade 12 girls where $p8,6$ is insignificant. This finding suggests that a girl's program of study, while it may be important in determining the level of educational expectation, is not significant in determining the level of occupational expectation. Perhaps girls view the occupational structure as offering more mobility avenues than the traditional mobility route through the educational system. In this case they would not see program streams as limiting their occupational expectations.

A fourth finding, and one that we have discussed in some detail, is common to all grades and for both boys and girls. The program of study is largely affected by family influence ($p6,5 = .534$) rather than by performance variables such as academic achievement ($p6,4 = .110$) and ability indicators such as mental ability ($p6,1 = .132$). It appears that family influence and ascriptive factors determine program of study to a greater extent than do rational considerations. In this manner the system of differentiated programs in the high schools merely serves and supports the class structure in the larger society.

Finally, a fifth finding need only be mentioned as it occurs for both grades and for both boys and girls, and has been

discussed previously. Self concept of ability largely determines academic achievement ($p_{4,3} = .540$ for grade 10 girls and $.513$ for grade 10 boys).

Table 5-10 and diagrams 5-6 and 5-7 on pages 173 and 174 present the analysis for boys and girls in grades 10 and 12 in French and bilingual schools. Since the analysis parallels the English findings, significant differences and important similarities only will be briefly mentioned. Firstly, the model for boys explains 58% of the variance in LEE and 25% of the variance in LOE. This represents an improvement from the 48% and 25% attained by the Wisconsin model in the previous chapter. Secondly, in terms of effect priorities, the effect of self concept of ability on LEE for this group ($p_{7,3} = .460$) exceeds the effects of family influence ($.316$) and program ($.157$). As was the case for grade 10 and 12 boys in English schools, self concept of ability plays an important part in determining LOE ($p_{8,3} = .283$) of boys in French and bilingual schools.

When the determinants of program are considered, the results mirror the English analysis. Program of study is largely determined by family influence ($p_{6,5} = .464$) and is only marginally affected by academic achievement ($p_{6,1} = .066$). Family influence, in turn, is effected more by SES ($p_{5,2} = .168$) than by academic achievement ($p_{5,4} = .142$). In fact, even self concept of ability is influenced by SES ($p_{3,2} = .242$).

TABLE 5-10

CORRELATION MATRIX FOR GRADE 10 AND 12 BOYS IN FRENCH AND BILINGUAL SCHOOLS

	MA	SES	SCA	AA	FAM. INFLU.	PROG.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇
X ₁	-						
X ₂	.181	-					
X ₃	.179	.266	-				
X ₄	.228	.212	.510	-			
X ₅	.213	.198	.409	.178	-		
X ₆	.208	.202	.268	.252	.507	-	
X ₇	.225	.337	.658	.383	.593	.454	-
LOE X ₈	.219	.249	.436	.327	.336	.302	.542

N = 183

CORRELATION MATRIX FOR GRADE 10 AND 12 GIRLS IN FRENCH AND BILINGUAL SCHOOLS

	MA	SES	SCA	AA	FAM. INFLU.	PROG.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇
X ₁	-						
X ₂	.126	-					
X ₃	.233	.102	-				
X ₄	.294	.077	.525	-			
X ₅	.156	.250	.344	.334	-		
X ₆	.248	.140	.354	.337	.736	-	
X ₇	.180	.295	.463	.352	.840	.716	-
LOE X ₈	.090	.149	.235	.211	.379	.287	.455

N = 226

DIAGRAM 5-6

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 10 & Grade 12 Boys in French and Bilingual Schools

DIAGRAM 5-7

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 10 & Grade 12 Girls in French and Bilingual Schools

The analysis for the girls in French and bilingual schools also parallels the English analysis. More of the variance in girls LEE than boys LEE is explained (75%) due largely to the large effect that family influence has upon LEE ($p_{7,5} = .653$) for girls. This was found to be the case for girls in English schools as well. In addition now the only significant path into LOE is from family influence. This reinforces the position that family influence is the dominant variable for girls. Similarly, program of study is more strongly linked to family influence for girls ($p_{7,5} = .695$) than it is for boys (.464) in French and bilingual schools.

Results Using Multiple Classification Analysis (MCA)

To lend support to the results presented in the previous section using path analysis, the data were also analyzed using Multiple Classification Analysis. MCA has been described as

...a technique for examining the interrelationships between several predictor variables and a dependent variable within the context of an additive model. Unlike simpler forms of other multivariate methods, the technique can handle predictors with no better than nominal measurement, and interrelationships of any form among predictors or between a predictor and the dependent variable. The dependent variable, however, should be an interval scale (or a numerical variable) without extreme skewness, or a dichotomy.

The statistics show how each predictor relates to the dependent variable, both before and after adjusting for the effects of other predictors. In addition, a multiple correlation coefficient is computed which indicates the magnitude of relationship between the dependent variable and all predictors considered together. (Andrews, Morgan and Sonquist, 1967:8)

Hence, we are operating with a technique that assumes additivity, that has no linearity or monotonicity assumptions, that requires the dependent variable be measured on an interval scale, and that accepts nominal, ordinal or interval variables as predictors. This set of assumptions is less stringent than those for path analysis (see previous chapter).

The statistics produced by MCA are Eta, Eta^2 , Beta and Beta^2 for each predictor variable and a multiple correlation coefficient and its square for all the predictor variables taken together. Eta represents the correlation ratio and Eta^2 indicates the proportion of the total sum of squares explainable by that variable. Beta and Beta^2 are analogous to Eta and Eta^2 but are based upon adjusted means rather than raw means. Thus Beta indicates the ability of the variable to explain variation in the dependent variable after adjusting for the effects of all other predictors. Beta^2 , however, cannot be interpreted as the percent of variance explained (Andrews, Morgan and Sonquist, 1967:22).

Table 5-11 presents the statistics for all predictors in the model for grade 12 and grade 10 boys in English schools with LEE as the dependent variable. As the table indicates, family influence, self concept of ability and program are the most salient predictors of LEE for both grades. Mental ability, SES and academic achievement by themselves, and when other variables are held constant, do not explain much of the variance in LEE. This is one reason why, in

TABLE 5-11

MCA ON LEE FOR GRADE 12 AND 10 BOYS IN ENGLISH SCHOOLS

	Grade 12				Grade 10			
	ETA	ETA ²	BETA	BETA ²	ETA	ETA ²	BETA	BETA ²
Family Influence	.693	.480	.369	.136	.731	.534	.453	.205
Self Concept of Ability	.531	.282	.253	.064	.596	.355	.271	.073
Program	.643	.414	.333	.111	.606	.367	.187	.035
Mental Ability	.288	.083	.020	-	.323	.104	.013	-
Socio-Economic Status	.219	.048	.031	-	.301	.090	.075	.005
Academic Achievement	.308	.095	.083	.007	.418	.175	.057	.003
Multiple R ₂ = .783				Multiple R ₂ = .802				
Multiple R ² = .613				Multiple R ² = .644				

the path models presented previously, that there are no significant direct paths from these variables to LEE. In grade 12 family influence is the most powerful predictor both by itself (Eta² = .480) and when other factors are controlled (Beta = .369). Program comes next with an Eta² of .414 and a Beta of .333. Self concept of ability is the next most significant predictor with an Eta² of

.282 and a Beta of .253. In grade 10, family influence is again the most significant predictor of LEE ($\text{Eta}^2 = .534$ and Beta = .453). Self concept of ability is the second most important predictor in grade 10 by virtue of the fact that it accounts for more of the variance than does program when all other factors are held constant (Beta = .271 for SCA and .187 for program). In all, the total model, but largely these three variables, accounted for 61% of the variance in LEE for grade 12 boys and 64% of the variance in LEE for grade 10 boys.

A second step in the MCA analysis was to develop a parsimonious model for explaining variance in LEE. This involved introducing the more powerful variables, one at a time, into the analysis, and observing the increase in the multiple R^2 or the increase in the total variance explained by the model. Table 5-12 shows the results for boys in grades 12 and 10 in English schools.

In grade 12, family influence alone accounts for 47% of the variance in LEE. Family influence and SCA account for 55.4% whereas family influence and program account for 54.6% of the variance in LEE. Therefore, family influence and SCA represents our second model for grade 12 boys. Family influence, SCA and program account for 61.1% of the variance in LEE which is almost the same figure for the total model presented in table 5-11. Hence, these three predictors represent a parsimonious model and the order of priority, in terms of magnitude of effects, is identical to the

TABLE 5-12

ESTABLISHING A PARSIMONIOUS MODEL ON LEE FOR GRADE 12 AND 10 BOYS IN ENGLISH SCHOOLS

Model	Grade 12 Variables and Order			Multiple R ²
	I	II	III	
I	Family Influence			.473
II ¹	Family Influence	SCA		.554
III	Family Influence	SCA	Prog.	.611
Grade 10				
I	Family Influence			.544
II ²	Family Influence	SCA		.626
III	Family Influence	SCA	Prog.	.645
1	Family influence then Program explained only			.546
2	Family influence then Program explained only			.573

grade 12 path model for boys in diagram 5-2. Similarly, family influence, SCA and program represent a parsimonious model for explaining variance in the III of grade 10 boys and this is similar to the path model presented in diagram 5-4.

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Tables 5-13 and 5-14 present the analysis for grade 10 and 12 girls. As table 5-13 indicates, the order of priority for grade

TABLE 5-13

MCA ON LEE FOR GRADE 12 AND 10 GIRLS IN ENGLISH SCHOOLS

	Grade 12				Grade 10			
	ETA	ETA ²	BETA	BETA ²	ETA	ETA ²	BETA	BETA ²
Family influence	.781	.610	.544	.296	.752	.566	.474	.225
Self Concept of Ability	.423	.179	.135	.018	.602	.362	.264	.070
Program	.660	.436	.298	.089	.613	.376	.239	.057
Mental Ability	.282	.079	.031	-	.282	.080	.002	-
Socio-Economic Status	.295	.087	.042	.002	.289	.083	.063	.004
Academic Achievement	.344	.119	.042	.002	.434	.188	.055	.003
Multiple R ₂ = .830 Multiple R ² = .689					Multiple R ₂ = .825 Multiple R ² = .680			

12 girls appears to be family influence (Eta² = .610 and Beta = .544), program (Eta² = .436 and Beta = .298) and self concept of ability (Eta² = .179 and Beta = .135). For grade 10 girls, the order of priority on the basis of the Eta² and the Beta's appear to be family

influence, self concept of ability and program. These variables were entered into the model in order, and for grade 12's, family influence alone explained 58% of the variance in LEE, family influence and program increased the explained variance to 66% and family influence, program and self concept of ability accounted for 69% of the variance in LEE. For the girls in grade 10 the order was family influence, SCA and program and the explained variance went from 57% to 65% to 69% respectively. In both cases these parsimonious models correspond

TABLE 5-14

ESTABLISHING A PARSIMONIOUS MODEL ON LEE FOR GRADE 12 AND 10 GIRLS.
IN ENGLISH SCHOOLS

Grade 12				
Model	Variables and Order			Multiple R ²
	I.	II.	III	
I	Family Influence			.583
II ¹	Family Influence	Program		.661
III	Family Influence	Program	SCA	.686
Grade 10				
I	Family Influence			.569
II ²	Family Influence	SCA		.646
III	Family Influence	SCA	Program	.685
1 Family influence then SCA explained 61.2%				
2 Family influence then Program explained 62.4%				

to the relative priorities of the variables, in terms of magnitudes, as was found by the path models discussed previously. Hence, we can conclude that our findings concerning the importance of family influence, SCA and program as determinants of LEE are independent of the two techniques.

In addition to using MCA, the data were analyzed for an alternative path model which included program as a control variable rather than as an intervening variable in the model. Findings of this analysis, details of which may be found in Appendix E, are too lengthy to present here but confirm the results presented above and on page 181.

Conclusions

In an effort to explain more of the variance in educational and occupational aspirations, two additional intervening variables were accommodated within a causal model. Self concept of ability and program of study were identified as being salient to the process of aspiration formation. The analysis showed that, in fact, the model developed was more powerful than existing models. Family influence, self concept of ability, and program of study were found to be the major direct factors influencing educational and occupational aspirations although this influence varied somewhat with the grade and sex of the respondent and with the particular dependent variable being examined. Ascriptive factors such as socio-economic status were found to exercise

a significant indirect influence through family influence while the role of achievement type variables such as mental ability and academic achievement were found to be of lesser importance. Family influence was extremely important by virtue of its direct influence upon educational and occupational aspirations and by virtue of its indirect influence on educational and occupational aspirations through program of study.

CHAPTER VI

SUMMARY AND CONCLUSIONS

Review of Previous Chapters

In the first chapter of this dissertation it was suggested that it is important to study aspirations for at least two basic reasons. Firstly, the research undertaken and reported upon here belongs to the tradition of attempting to specify and explain the process of status attainment. As researchers have indicated, this process of status attainment may be viewed as being comprised of, on the one hand, the process by which aspirations are formed and, on the other hand, the process by which aspirations are enacted (Haller and Portes, 1973:70). Thus, researchers have found that aspirations are central to the process of status attainment (Sewell, Haller and Ohlendorf, 1970; Haller and Portes, 1973).

It is the last set of variables which constitutes the strategic center of the model. Aspirations mediate most of the influence of antecedent factors on status attainment. Even when educational attainment is taken into account, occupational aspirations still exercise a significant direct effect on occupational attainment.

The execution of occupational and educational aspirations appears to be a central process in early adult status attainment, not only because it represents a clear expressive orientation toward desirable goals but also because it is likely to involve a realistic appraisal of possibilities conveyed to ego by significant others and his own self-evaluations. The hypothesized impact of aspirations on status attainment does not mean that

all or most specific goals must be fulfilled but, more generally, that initial plans set limits to the range where eventual attainment levels are likely to be found. (Haller and Portes, 1973:68)

In other words, aspirations mediate most of the influence of social background characteristics on educational and occupational attainment. In addition, aspirations per se help to account for variance in attainment that was not accounted for by the social background variables specified in the causal models. In short, the inclusion of aspirations in the model makes its own unique contribution toward the explanation of status attainment (Sewell, 1971:799-800). The research undertaken in this dissertation seeks to expand our understanding of the process of aspiration formation and, therefore, to make a contribution to the broader study of status attainment.

The second basic reason for studying aspirations stems from a concern for equality of educational access in Canadian society. Policy makers and those concerned with social policy have traditionally concentrated upon removing the financial barriers to higher education. While this undoubtedly is a worthwhile social goal, it must be recognized that the removal of financial considerations is only a necessary condition for equality of access. To be more successful, social policy must recognize and come to grips with the motivational problem. While this problem has been recognized by Canadian social scientists (cf. Pike, 1970:97, Porter, 1965:172: Porter, 1968:13) few policy suggestions have been put forward. For

example, it has been noted that:

If suddenly education became as free as the air, many would not choose it. In a free society such a choice is everyone's right, but there is a great deal of evidence that the desire to stay in school and continue to university is related principally to the position which the family occupies in the general social structure, particularly its class position. In a depressed environment the appropriate motives are not forthcoming, and if they were they would probably lead to frustration. Those who are reared in a milieu indifferent to education are not likely to acquire a high evaluation of it, a situation which, although difficult, is not impossible to correct through social policy. (Porter, 1965:172)

Later in this chapter social policy considerations will be reviewed in the light of the theory developed and the analysis presented in the previous chapters.

In the second chapter of the dissertation the groundwork for developing a theoretical framework of educational and occupational aspirations was laid by a thorough consideration of the relevant literature in this area. The literature revealed that educational and occupational aspirations were found to be associated with such individual level factors as socio-economic status, peer influences, family influences, family dynamics, intelligence, program of study, self concept of ability, sex, and ethnic and religious group membership. Contextual variables like school, neighborhood and classroom influence were also found to be related to educational and occupational aspirations; however, there was considerable debate over whether or not these

relationships held when certain individual level variables such as SES were held constant. Since this area was very much in doubt the study in general and the questionnaire administered did not attempt to examine the relationship between contextual variables and aspirations. Most of the analysis in the literature concerning the variables mentioned above was accomplished using bi-variate and tri-variate cross-tabulations. More recent research was found to employ elaborate causal models. Significant findings of such path models are: (1) much of the variance in educational and occupational aspirations can be accounted for using SES, mental ability, academic achievement and significant others (family, teachers and peers) influence (2) SES and mental ability are exogenous variables in the model and most of their influence is mediated by academic achievement and significant others' influence which operate as intervening variables (3) the family appears to be the most salient source of significant others.

The literature on causal models identified a number of problems that the status attainment paradigm had yet to explore. First, these causal models were largely an American invention and had yet to be tested with data from other societies. Secondly, the models were exclusively applied to boys and their applicability for the process of female aspiration formation had yet to be tested. Thirdly, the Wisconsin model was applied not just to males but only to male high school seniors. Its appropriateness for students in earlier school grades needed to be tested. Fourthly, the American

model had not exhausted the range of pertinent intervening variables. School program and self concept of ability were identified as illustrations of a structural and a social psychological variable that were salient in the formation of aspirations but had not yet been introduced into the complex causal models. Fifthly, the research in this area demonstrated a tendency toward abstract empiricism with little regard for deducing the empirical regularities discovered from higher order propositions. In short, there was no coherent theory or theory-sketch of the process of aspiration formation. Finally, policy implications of the research were not explicitly drawn out and reviewed. This chapter will devote attention to the last of these considerations after further reviewing the focus of the previous chapters.

The third chapter of the dissertation formulated a theoretical framework for the explanation of educational and occupational aspirations. It was argued that the relationships between social background variables and educational and occupational aspirations would vary with the normative structure of the society. Technology was seen as operating in a demand manner by creating the range of positions known as the occupational distribution or the division of labor. Ideology was seen as affecting the supply of motivated individuals into these occupational positions. The two salient ideological dimensions in this regard were equality of condition and equality of opportunity. When these two dimensions were cross-classified four ideal types of society were identified -

communal society, with minimal material inequalities and low equality of opportunity, stratified society, with maximal material inequalities and low equality of opportunity, meritocracy, with maximal material inequalities and high equality of opportunity, and egalitarian society, with minimal material inequalities and high equality of opportunity. Each of these societies was characterized by a unique moral theory and by different social relationships. In communal and stratified societies, educational and occupational aspirations, it is expected, would be related to ascriptive characteristics such as sex, religion, ethnicity, SES etc. while in meritocracy and in egalitarian society educational and occupational aspirations would be related to achieved or performance measures such as mental ability and academic achievement.

This theory was important for certain chapters in the dissertation. The technique of path analysis utilized in chapters IV and V requires that a theory of the temporal ordering of variables be specified. Of equal importance, however, is the fact that the typology specified in chapter III arranges societies according to different moral principles. Of particular importance were the meritocratic and the egalitarian models. Therefore, it will be possible, later in this chapter, to make two sets of policy proposals designed to achieve each of these models. Not infrequently, educational policy recommendations in Canada and in the United States, since the Second World War, have been suggested with no explicit consideration of the type of society that is considered desirable. The approach taken

here is one that allows us to structure our future and to clearly see what that future entails in terms of moral principles. The writer's preferences will be indicated although the theory itself is value-free as alternatives are indicated. In other words, although the writer clearly favors an egalitarian society on moral (personal) grounds, this chapter is not presenting an ethical argument for the superiority of egalitarian society. Rather, this chapter seeks to make the simple, but frequently overlooked point, that various futures are possible and that social policies should be consistent with a particular educational goal.

Chapter IV was concerned with a cross national comparison of the process of aspiration formation in Canada and in the United States. These two societies were placed on the typology developed in Chapter III and a review of the relevant literature indicated that while both were stratified societies, the United States was closer to meritocracy by virtue of a greater concern for equality of educational opportunity than Canada. Based upon this placement on our typology several hypotheses were elaborated. The major hypothesis was that in Canada ascriptive factors such as SES would play a greater role than in the United States. The data were analyzed using path analysis and using the same model as employed by Sewell, Haller and Ohlendorf (1970) on Wisconsin male high school seniors. In the Canadian analysis girls and earlier high school grades were introduced into the comparison. A number of interesting findings emerged. The influence of SES was found to be greater in the Canadian

analysis. Similarly, the role of the family was found to be greater in Canada than in the United States. The influence of the family was especially greater for girls than for boys. This latter finding largely accounted for the fact that the model consistently accounted for a greater proportion of the variance in the level of educational aspirations for girls than for boys. Similarly, the model consistently accounted for more of the variance in LEA of both boys and girls when applied to earlier grades largely due to the stronger influence of the family in the earlier grades. Finally, SES appeared to reveal a differential timing effect upon boys and girls with the effect consistently felt throughout high school for the boys but more strongly felt at grade 12 for the girls. This finding may underlie the reason that fewer boys finish high school than girls but that fewer girls go on to university than boys. The SES effect for girls is not primarily manifested until the end of high school whereas for boys it has already taken its toll.

In Chapter V the Wisconsin model of educational and occupational aspiration formation was extended to encompass two additional variables - self concept of ability and program of study. Of all the variables in the extended model, family influence, self concept of ability and program of study were found to be the most salient direct factors in the process of aspiration formation. Of these three variables, family influence proved to be the most important, having a strong direct effect upon the level of educational expectation and the level of occupational expectation and having

as well a strong indirect effect through program of study. In turn, family influence was found to be closely associated with the socio-economic status of the family. Thus, the process of expectation formation was found to be related to ascriptive factors. This was particularly evident when paths leading into program of study were considered. Program of study was found to be more closely related to family influence than to be related to performance dimensions like academic achievement, mental ability and self concept of ability. Similar to the finding in chapter IV family influence was found to be more strongly related to the level of educational expectation for girls than for boys. In line with this finding the model explained more of the variance in girls' level of educational expectation than in boys' level of educational expectation. The process of extending the model has been referred to as building up the aspiration formation paradigm as the new model explains more of the variance in level of educational expectation and more of the variance in level of occupational expectation for both girls and boys than did the discussing model.

Conclusion

In conclusion this dissertation has attempted to make three major contributions to sociology. First, an attempt was made to develop a theoretical framework for the explanation of educational and occupational aspirations. Secondly, comparative enquiry was initiated on educational and occupational aspirations in Canada and in the United States. Although the study is presented in chapter four

was not strictly a replication of the Sewell, Haller and Ohlendorf (1970) model, because the Wisconsin model treated occupational attainment as the dependent variable whereas the Canadian analysis treated aspirations as the dependent variable (and thus caution should be exercised in making inferences), the analysis was, however, careful to operationalize variables in a comparable manner. The third contribution the dissertation sought to make was to "top up the paradigm" by elaborating a more powerful model of the educational and occupational attainment process.

In conclusion, it is hoped that the findings of this dissertation may be useful to further researchers, particularly those interested in social policy recommendations. Perhaps the findings of this dissertation can be used to contribute to the debate over the efficacy of public education as exemplified by the controversy surrounding The Coleman Report (1966), as pursued by Mosteller and Moynihan (1972) and as generated by Christopher Jencks' Inequality.

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- 1960b "The treatment of reciprocal interaction, with or without lag, in path analysis" *Biometrics* 16 (September):423-445
- Wrong, Dennis
1955 *Canadian and American Viewpoints*. Washington:American Council on Education.

Wylie, Ruth C.

1961 The Self Concept. Lincoln, Nebraska: University of Nebraska Press.

Young, Michael

1961 The Rise of Meritocracy. Bristol: Penguin Books.

Erratum: add

Labovitz, Sanford

1970 "The assignment of numbers to rank order categories"
American Sociological Review 35 (June):515-525.

APPENDICES

Appendix A

Material Relating To

Sewell, Haller and Ohlendorf (1970)

Operationalization of Variable

Contents:

Item A - Letter to William H. Sewell

Item B - Reply from Sewell

Item C - Notes on the Coding of Occupational Aspirations

Item D - 1957 Wisconsin questionnaire

Item E - 1964 male follow-up questionnaire

Item F - 1964 female follow-up questionnaire

Item G - Miscellaneous marginals

Item A

April 24th, 1973.

Prof. William H. Sewell,
 Department of Sociology,
 University of Wisconsin,
 Madison, Wisconsin 53706,
 U. S. A.

Dear Professor Sewell,

As part of my dissertation, I am presently engaged in applying the causal model you specified in "The educational and early occupational status attainment process: replication and revision" to data gathered by John Porter and Bernard Blisshon in Ontario, Canada. In my case the dependent variables are educational and occupational aspirations and the purpose of this particular chapter is to make some comparative statements on the process of aspiration formation in the United States and in Canada.

To ensure similar operationalization of variables could you send me information on the following:

- (1) IOA - exact question asked (i.e. how far in the future)
- (2) IEA - exact question asked (i.e. was this immediate plans, aspirations or expectations)
- (3) SOI - exact questions asked for perceived parental encouragement, perceived teacher encouragement and friends' college plans and the response categories for each question. The weights for each item.
- (4) SES - response categories for father's and mother's education, father's occupation. Weights for each item in the scale.

Actually most of these questions could be answered by simply sending me a copy of the original questionnaire administered if you do not mind. In addition, Professor Porter would appreciate receiving a copy of the questionnaire used in the 64-65 follow-up

Prof. William H. Sewell,
Department of Sociology,
Page 2

study.

Thank you for your assistance.

Yours sincerely,

Sid Gilbert,
Research Associate,
Educational Plans and Aspirations
of Ontario High School Students Project.

SG/gc

Department of Sociology

THE UNIVERSITY OF WISCONSIN

Social Science Building Madison, Wisconsin 53706 Telephone (608) 262-2921

May 22, 1973

Mr. Sid Gilbert, Research Associate
Department of Sociology and Anthropology
Carleton University
Ottawa, Canada

Dear Mr. Gilbert:

Enclosed is a copy of the Seall, Haller, and Ohlendorf reprint, "The Educational and Early Occupational Status Attainment Process: Replications and Revisions," which gives the operational definitions used in the research (see page 1015).

Also enclosed are the following: the 1957 questionnaire, 1964 follow-up post cards, appropriate code book sheets and relevant memos.

LOA - from question #9b 1957 questionnaire; cols. 118-119
(memo included)

LEA - from questions #1 and 2 1957 questionnaire; col. 17
(see also col. 13)

SOI - from questions #24-26 1957 questionnaire; col. 304

SES - from questions 7, 9a 1957 questionnaire and state tax returns; cols. 299-300

I hope that this material will enable you to replicate our work. I will be pleased to see your results.

Please give my best regards to John Porter.

Sincerely,

Wm. H. Sewell

William H. Sewell
Vilas Research Professor

WHS:at
encs.

Item C

not available for microfilming

HSR _____
HN _____

MY PLANS BEYOND HIGH SCHOOL

Do not
write in
this col.
1-6
7-8
9-10
11
12

Name _____ Age _____ M _____ F _____
School _____ Home address _____
Father's name _____
(or other parent or guardian)

1. I plan (Place a check (x) before the statement which describes what you plan to do next year)

☐ To continue going to school	☐ To go into military service
☐ To get a job	☐ To work at my home
☐ To become an apprentice	☐ I have no definite plans
☐ (Other, specify) _____	

13

If the plan you have checked is not what you would really like to do, place an (L) in front of the statement above which described what you would most like to do, then state what circumstances prevent you from doing what you would most like to do.

14

How sure are you that you will be doing what you plan? _____ certain _____ uncertain

15

2. If you checked that you plan to go to school next year, what kind of school do you plan to attend?

☐ Public	☐ Private
☐ Vocational school	☐ Liberal arts college
☐ County teachers college	☐ University
☐ State college	☐ Business or trade school
☐ University	☐ Other _____

(Specify)

17

Do you plan to attend school outside Wisconsin? _____ yes _____ no

18

I plan to attend school _____ full-time _____ part-time

19

3. If you plan to continue your schooling or training, answer the items below. If not, go to question 4.

I plan to enter the following courses or fields:

In trade or vocational school _____ Specify field or training _____

Apprenticeship _____ Specify field or trade _____

College or university: (check the field of your interest)

☐ Agriculture	☐ Engineering	☐ Liberal Arts
☐ Architecture	☐ Fine Arts	☐ Medicine
☐ Aeronautics	☐ Forestry	☐ Nursing
☐ Business	☐ Home Economics	☐ Pharmacy
☐ Chemistry	☐ Journalism	☐ Social Work
☐ Dentistry	☐ Law	☐ Teaching
☐ Undecided	☐ (Other) _____	☐ Veterinary

20-21

4. If you plan to get a job next year, check the statement below which applies to you.

- ☐ I have applied, but do not yet have a job
☐ I have applied and have been accepted
☐ I have not applied
☐ I will continue in a job I now have
☐ Other _____

My job will be: (describe) _____

22-23

(Name of firm) _____

It will pay about _____ per week

24

5. To what extent have you discussed your plans with your teachers or school counselors?

_____ not at all _____ some _____ very much

How much did they influence your plans?

_____ not at all _____ some _____ very much

25

6. To what extent have you discussed your plans with your parents?
 _____ not at all _____ some _____ very much

How much did they influence your plans?

_____ not at all _____ some _____ very much

26

7. Education of father and mother (check highest level attained)

High School

did not attend

attended

graduated from

Trade or business school:

attended

College:

attended

graduated from

has master's or Ph.D. degree

Do not know

Father

Mother

27

28

8. Education of older brother and sister who have had most schooling. (Check the highest level reached; if more than one, show number at each level.)

Brother

Sister

Some high school

High school graduate

Some college

Attending college

College graduate

Attending graduate school (or attended)

None older

29

30

9. (a) My father is engaged in the type of occupation checked in the left hand column below.

(b) I hope eventually to enter the type of occupation checked in the right hand column below.

Father

Me

Office work (cashier, clerk, secretary, bookkeeper, etc.)

Professional (doctor, lawyer, minister, teacher, etc.)

Executive (manages large business, industry, firm)

Factory worker (laborer, janitor, farm hand, etc.)

Salesman (insurance, real estate, auto, store, etc.)

Owns, rents, manages small business (store, station, newspaper, cafe, etc.)

Owns, rents, manages farm

Other occupation (be specific)

31

32

(c) If your mother has a job outside the home, place an (M) before the type of occupation in which she works.

33

10. How much do you think it costs per school year to attend college away from home?

Less than \$1000

Between \$1500 and \$2000

Between \$1000 and \$1500

More than \$2000

34

11. How do you estimate the ability of your parents to help you go to college, if you desire to go?

can easily afford it

cannot afford it

can afford it, but with much sacrifice

I must work to help support the family

35

12. In terms of income or wealth of families in my community, I think my family is:

considerably above average

average

somewhat above average

somewhat below average

considerably below average

36

13. (a) Have you ever considered attending college? _____ yes _____ no

(b) If no, would you consider it if you had the money? _____ yes _____ no

37

(c) Would you borrow money for college expenses if you

could pay it back on the installment plan after

leaving college

yes

no

38

(d) About how much could you or your family contribute to your college expenses next year (if you were going)?

none

less than \$500

Between \$500 and \$1000

between \$1000 and \$1500

all my expenses

39

14. Did you apply for admission to a school or college? (Check the statements which apply to you)

- ☐ I have not applied
☐ I have applied, but have not heard
☐ I have not applied, but plan to
☐ I plan to apply
☐ I have applied but was refused because:
☐ I did not rank high enough
☐ I did not take the right subjects
☐ I have been tentatively admitted, and expect to attend
☐ The school could not take more students

(Name of School(s))

(Name of School)

40

I sent applications to _____ schools

41

15. Did you take the National Merit Scholarship Examinations?

yes no

42

16. Did you take the College Entrance Board Examinations

yes no

Scholastic Aptitude Test

Subject matter in (fields)

43

17. Have you applied for a scholarship?

- ☐ I did not apply
☐ I have applied, but have not yet heard
☐ I have applied, but was not successful
☐ I have received a scholarship from

a college

(Name)

company or corporation

(Name)

organization or society

(Name)

other

44

18. The scholarship or awards I have will pay the following part of my college expenses next year:

tuition, one semester

tuition, plus \$

tuition, both semesters

\$ (cash)

all expenses

45

19. If you are going to school next year what part of your school or college expenses do you expect to provide from summer earnings or part-time work at school?

Less than \$250

Between \$500 and \$750

Between \$250 and \$500

More than \$750

46

20. Has marriage or the early prospect of marriage influenced your plan for next year? yes no

47

21. Place a circle around the number of semesters in which you studied the following subjects?

Algebra 0 1 2 3 4

English 0 2 4 6 8

48-53

Geometry 0 1 2 3 4

History 0 2 4 6 8

Trigonometry 0 1 2 3 4

Social Studies 0 2 4 6 8

Biology 0 1 2 3 4

Foreign Language 0 2 4 6 8

54-57

Chemistry 0 1 2 3 4

Specify Language(s)

Physics 0 1 2 3 4

Did you take a college preparatory course?

yes no

58

22. Did your high school give you practice in the following college-type experiences? (Check those in which you had considerable experience)

Taking notes from lectures

Writing term reports

Taking final semester examinations during a scheduled period

Making individual studies with oral reports

Long-term assignments

Planning own use of study time rather than required study period

(If other, describe)

59

23. For the work I want to do, a college education is:
 ___ necessary ___ desirable ___ unnecessary 60
24. My teachers in high school have:
 ___ encouraged me to go to college
 ___ discouraged me from going to college
 ___ have had no effect on my decision 61
25. My parents:
 ___ want me to go to college
 ___ do not want me to go
 ___ do not care whether I go
 ___ will not let me go 62
26. Most of my friends are:
 ___ going to college
 ___ getting jobs
 ___ going into military service
 ___ other 63
27. High school studies:
 ___ have been interesting; I want to learn more
 ___ have been uninteresting; I would rather work than study
 ___ have had no special influence upon my plans 64
28. The prospect of military service: (boys only)
 ___ has influenced me to attend college and join the ROTC
 ___ has made me uncertain about my future plans
 ___ has caused me to plan a military career
 ___ has had no influence upon my plans
29. The fact that boys must go into military service: (girls only)
 ___ has caused me to be unsettled in my plans
 ___ has had no influence upon my decisions
 ___ has caused me to plan to enter military service too 65
30. Which of the following statements best describe your opinion of the value of going to college? (Answer if, whether you plan to go to college or not. Check the 3 statements which seem most important to you.)
- ___ I would rather start earning money quickly, and learn on the job
 - ___ I (am) would be greatly dissatisfied to stop at my present level of knowledge
 - ___ College life and activities (like athletics) attract me very much
 - ___ College graduates get jobs with better pay
 - ___ The country needs more people who have highly developed skills and knowledge
 - ___ College is a good place to meet a worthy life mate
 - ___ Skilled laborers are paid as much as most college graduates
 - ___ Going to college enables you to study more lines of work before deciding on a career
 - ___ A college education helps you live a happier, more complete life
 - ___ Going to college costs more than it is worth
 - ___ College studies will make you work at a high intellectual level, and I like that
 - ___ College graduates usually have the leadership positions
 - ___ Learning on a job is more practical than most school learning
 - ___ Persons who do not have college educations often make better leaders
 - ___ College life broadens you socially, and develops your personality
 - ___ Success in life depends upon ability and effort, not amount of education
 - ___ Going to college would be a waste of time for me
 - ___ Going to college has just been accepted; I have never thought of anything else 66

WISCONSIN STATE DEPARTMENT OF PUBLIC INSTRUCTION
 AND
 SCHOOL OF EDUCATION, UNIVERSITY OF WISCONSIN

PLEASE FORWARD

Item E

- IS SIGNED CARD FOR ADDRESS -

RETURN REQUESTED
 Professor William H. Sewell
 Department of Sociology
 The University of Wisconsin
 Madison, Wisconsin 53706

To the parents of _____

SCHOOL OR COLLEGE

1. Since high school, has your son attended any school or college? YES _____ NO _____
 2. If YES:

Name of School	Years From To	Graduated
_____	_____	YES _____ NO _____
_____	_____	YES _____ NO _____
_____	_____	YES _____ NO _____

EMPLOYMENT

3. What is his present occupation? _____
 Name of firm: _____ Job title: _____

OTHER

4. Is your son married? YES _____ NO _____ If YES, year married _____
 5. Military Service: now serving _____ has served _____ has not served _____
 6. What is YOUR SON'S present mailing address?

_____ street
 _____ city _____ state

Professor William H. Sewell
 Department of Sociology
 The University of Wisconsin
 Madison, Wisconsin 53706

THIS SIDE OF CARD IS FOR ADDRESS

THE UNIVERSITY OF WISCONSIN

Dear Parents:

We ask your son to take part in a survey of the post-high school plans of Wisconsin high school seniors. The Department of Sociology of The University of Wisconsin is conducting a study of the educational and work experiences of these students since leaving high school.

The information we are seeking concerning your son will be used in the state-wide Study of Wisconsin High School Students and will be of great help in planning for future educational developments in Wisconsin. Please fill out and return the attached post card immediately. Be sure to include your return address in the upper left-hand corner of the card.

Only with your help can we get complete information about what has happened to your son's high school class. **THANK YOU FOR YOUR COOPERATION.**

Sincerely,

William H. Sewell
 Professor of Sociology

1. Since high school, has your daughter attended a school or college? YES___ NO___

EMPLOYMENT

OTHER

5. If married, what is her husband's occupation? _____

6. What is YOUR DAUGHTER'S present home and mailing address?

(Miss) _____
(Mrs.) _____

street

city state

Asp. Tape SWL12A

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<u>Cols.</u>	<u>Codes</u>	<u>Item</u>	<u>One-Third Sample</u>		<u>Top 10% IQ Group</u>	
			<u>Total Respondents</u>	<u>Freq.</u>	<u>Total Respondents</u>	<u>Freq.</u>
118-119		<u>R's/Occupational Aspiration: Duncan's SES Index*</u>				
		(See also cols. 18-19 and 20-21.)				
	00	Lowest	---	---	---	---
	01		---	---	---	---
	02		---	---	---	---
	03		---	---	---	---
	04		---	---	---	---
	05		---	---	---	---
	06		121	108	7	6
	07		---	---	---	---
	08		---	---	---	---
	09		---	---	---	---
	10		---	---	---	---
	11		402	324	25	20
	12		---	---	---	---
	13		---	---	---	---
	14		335	306	36	35
	15		---	---	---	---
	16		---	---	---	---
	17		---	---	---	---
	18		438	387	69	63
	19		799	599	163	118
	20		637	558	46	42
	21		---	---	---	---
	22		---	---	---	---
	23		---	---	---	---
	24		---	---	---	---
	25		---	---	---	---
	26		---	---	---	---
	27		---	---	---	---
	28		---	---	---	---
	29		---	---	---	---
	30		---	---	---	---
	31		---	---	---	---
	32		536	470	70	64
	33		---	---	---	---
	34		---	---	---	---
	35		---	---	---	---
	36		---	---	---	---
	37		---	---	---	---
	38		---	---	---	---
	39		---	---	---	---
	40		---	---	---	---
	41		---	---	---	---
	42		---	---	---	---

Asp. Tape SWL18A

April 1972

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<u>Cols.</u>	<u>Codes</u>	<u>Item.</u>	<u>One-Third Sample</u>		<u>Top 107 IQ Group</u>	
			<u>Total Responses</u>	<u>Total Responses</u>	<u>Total Responses</u>	<u>Total Responses</u>
			<u>Freq.</u>	<u>Freq.</u>	<u>Freq.</u>	<u>Freq.</u>
118-119	43		---	---	---	---
	44		3075	2673	480	434
	45		---	---	---	---
	46		---	---	---	---
	47		---	---	---	---
	48		---	---	---	---
	49		---	---	---	---
	50		1081	954	500	537
	51		545	495	249	237
	52		39	35	25	22
	53		---	---	---	---
	54		---	---	---	---
	55		---	---	---	---
	56		---	---	---	---
	57		---	---	---	---
	58		---	---	---	---
	59		---	---	---	---
	60		---	---	---	---
	61		---	---	---	---
	62		344	317	197	172
	63		---	---	---	---
	64		---	---	---	---
	65		92	86	60	75
	66		---	---	---	---
	67		---	---	---	---
	68		---	---	---	---
	69		---	---	---	---
	70		---	---	---	---
	71		---	---	---	---
	72		806	815	450	411
	73		---	---	---	---
	74		---	---	---	---
	75		---	---	---	---
	76		---	---	---	---
	77		---	---	---	---
	78		45	41	32	29
	79		---	---	---	---
	80		---	---	---	---
	81		---	---	---	---
	82		---	---	---	---
	83		---	---	---	---
	84		111	102	153	142
	85		---	---	---	---
	86		---	---	---	---
	87		620	560	565	524

<u>Cols.</u>	<u>Codes</u>	<u>Item</u>	<u>One-Third Sample</u>		<u>Top 10% IQ Group</u>	
			<u>Total Responses</u>	<u>Freq.</u>	<u>Total Responses</u>	<u>Freq.</u>
118-119	88		---	---	---	---
	89		---	---	---	---
	90		---	---	---	---
	91		---	---	---	---
	92		---	---	---	---
	93		56	50	49	45
	94		---	---	---	---
	95		---	---	---	---
	96		135	123	133	122
	97		---	---	---	---
	98		---	---	---	---
	99	Highest	---	---	---	---

<u>One-Third Sample</u>			<u>Top 10% IQ Group</u>		
<u>Total Responses</u>			<u>Total Responses</u>		
<u>Codes</u>	<u>Freq.</u>	<u>Freq.</u>	<u>Codes</u>	<u>Freq.</u>	<u>Freq.</u>
<u>Quartiles</u>			<u>Quartiles</u>		
00-20	2732	2282	00-20	896	782
21-44	3611	3143	45-72	873	796
45-62	2009	1801	53-74	905	829
63-99	1965	1781	85-99	747	691
<u>Thirds</u>			<u>Thirds</u>		
00-32	3268	2752	00-44	896	782
33-50	4156	3627	45-72	1593	1454
51-99	2893	2628	73-99	932	862

*See ditto "On the Coding of Occupational Aspirations"
by R. M. Hauser - 8/3/70

Cols.	Codes	Item	One-Third Sample Total Respondents		Top 10% IO Group Total Respondents	
			Freq.	Freq.	Freq.	Freq.
12		<u>Sex of Respondent</u>				
	1	Male	4994	4308	1780	1622
	2	Female	5323	4619	1641	1476
13		<u>R's Next Year's (1958) Plans</u> (recoded from Sowell Tape #10 cols. 13, 16, 18-19)				
	0	N.A., other plans	75	61	21	18
	1	Get married-housewife	157	136	28	21
	2	Work at home	223	191	17	15
	3	Get a job	3323	2840	408	360
	4	No definite job	381	317	52	47
	5	Military service; military service, then school	1158	1004	182	162
	6	Become apprentice	162	128	10	9
	7	Vocational, trade, business and other schools	1457	1287	343	319
	8	State or teacher's college	1205	1059	477	435
	9	University or liberal arts college	2176	1926	1383	1238
14		<u>Blank</u>				
15		<u>R's Certainty of His Future Plans*</u>				
	0	N.A.	5437	4760	649	535
	1	Uncertain	1582	1347	122	112
	2	Certain	3328	2892	2650	2397

*See memo on "Coding Errors" - Jesudason 4/11/72

Cols.	Codes	Item	<u>One-Third Sample</u>		<u>Top 10% IQ Group</u>	
			<u>Total respondents</u>	<u>Total respondents</u>	<u>Total respondents</u>	<u>Total respondents</u>
			<u>Freq.</u>	<u>Freq.</u>	<u>Freq.</u>	<u>Freq.</u>
16		<u>School Plans #1: Kind of School R's Planning to Attend if Further Schooling Contemplated*</u>				
	0	N.A.; is not continuing school	5479	4708	718	632
	1	All other schools except the following codes	539	483	195	161
	2	Vocational, trade, or business school	918	611	146	133
	3	State or teacher's college	1265	1072	477	439
	4	University or liberal arts college	2178	1934	1883	1708

*See memo on "Recoding of Questionnaires" - 8/17/62

17		<u>School Plans #2* (Condensed from col. 16)</u>				
	0	Not applicable, N.A.	5480	4708	718	632
	1	All schools except college or university (codes 1-2 in col. 16)	1467	1297	3423	3187
	2	University or any college (codes 3-4 in col. 16)	3376	3002	2300	2147

*See memo on "Recoding of Questionnaires" - 8/17/62

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Cols.	Codes	Item	One-Third Sample		Top 10% IO Group	
			Total Respondents	Total Respondents	Total Respondents	Total Respondents
			Freq.	Freq.	Freq.	Freq.
303		<u>Significant Others' Influence--Parents</u> (A weighted combination of cols. 52-54.)				
	0	Lowest	4	4	----	----
	1		14	10	3	3
	2		343	272	53	43
	3		41	33	6	5
	4		623	542	209	192
	5		1603	1381	169	149
	6		1438	1310	666	602
	7		1373	1143	221	204
	8		2186	1937	1284	1164
	9	Highest	2692	2375	810	736
304		<u>Significant Others' Encouragement for College Plans</u> (A weighted combination of cols. 51, 54, 55.)				
	0	Lowest	1	1	----	----
	1		----	----	----	----
	2		66	60	2	2
	3		420	363	26	24
	4		11	11	----	----
	5		3163	2698	251	225
	6		1128	962	168	145
	7		1112	966	239	216
	8		2299	2044	1048	953
	9	Highest	2117	1902	1687	1533
305		<u>Blank</u>				
306-307		<u>Last Year of Attendance (College)</u>				
	Blank	Nonrespondents	1310	0	323	0
	00	Did not attend or only attended summer school	6934	5674	1143	820
	10	Attended, last year not known	364	364	153	153
	57	Last year 1957	17	17	8	8
	58	Last year 1958	288	288	121	121
	59	Last year 1959	342	342	174	174
	60	Last year 1960	203	203	78	78
	61	Last year 1961	775	775	630	630
	62	Last year 1962	396	396	325	325
	63	Last year 1963	261	261	201	201
	64	Last year 1964	687	687	588	588

<u>Cols.</u>	<u>Codes</u>	<u>Item</u>	<u>One-Third Sample</u>		<u>Top 10% IO Group</u>	
			<u>Total Respondents</u>	<u>Freq.</u>	<u>Total Respondents</u>	<u>Freq.</u>
301		<u>Significant Others' Influence-All</u> (A weighted combina- tion of cols. 49-55)				
	0	Lowest	1	1	----	----
	1		174	140	4	2
	2		313	271	33	31
	3		1350	1116	118	100
	4		1614	1386	188	168
	5		1627	1402	388	353
	6		1707	1521	609	548
	7		1697	1537	850	777
	8		1254	1112	843	762
	9	Highest	580	521	388	357

Significant others influence - is a weighted combination of three items reported by the youths in 1957: perceived parental encouragement to attend college, perceived teacher encouragement for college, and friends' college plans. All of these indicators concern influence of others on educational plans. The principal component method of factor analysis was utilized to determine weights for each of the three items. (Sewell, Haller and Ohlendorf, 1970: p. 1017)

302		<u>Significant Others' Influence-Teachers</u> (A weighted combination of cols. 49-51.)				
	0	Lowest	60	52	4	3
	1		----	----	----	----
	2		2404	2008	224	195
	3		1306	1122	393	353
	4		54	46	4	4
	5		2635	2323	710	642
	6		2276	2056	1406	1279
	7		425	364	72	63
	8		884	794	470	437
	9	Highest	273	242	138	122

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		<u>One-Third Sample</u>		<u>Top 10% 10 Group</u>	
		<u>Total Respondents</u>		<u>Total Respondents</u>	
<u>Cols.</u>	<u>Codes</u>	<u>Item</u>	<u>Freq.</u>	<u>Freq.</u>	<u>Freq.</u>
<u>Factor Weighted Combination of Parents' Education, Father's Occupation, and Average Parental Income--Cols. 23, 24, 252-253, 273-275.</u>					
299-300					
	01	Lowest	61	49	9
	02		135	116	20
	03		602	471	72
	04		494	446	77
	05		351	312	54
	06		456	386	56
	07		419	363	74
	08		351	299	74
	09		488	400	93
	10		468	426	84
	11		393	355	84
	12		462	390	130
	13		373	340	81
	14		365	332	97
	15		455	394	150
	16		348	317	114
	17		338	303	119
	18		345	284	119
	19		259	242	95
	20		255	228	91
	21		267	237	117
	22		232	210	101
	23		217	191	92
	24		286	240	124
	25		154	144	94
	26		172	144	77
	27		147	128	76
	28		125	118	69
	29		128	108	86
	30		103	86	60
	31		76	63	37
	32		97	86	68
	33		85	72	51
	34		59	55	49
	35		83	76	56
	36		60	53	51
	37		44	39	40
	38		65	52	46
	39		51	44	46
	40		40	39	30
	41		61	52	49

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<u>Cols.</u>	<u>Codes</u>	<u>Item</u>	<u>One-Third Sample</u>		<u>Top 10% IQ Group</u>	
			<u>Total Respondents</u>	<u>Total Respondents</u>	<u>Total Respondents</u>	<u>Total Respondents</u>
			<u>Freq.</u>	<u>Freq.</u>	<u>Freq.</u>	<u>Freq.</u>
299-300	42		26	26	24	23
	43		47	43	24	24
	44		44	38	33	29
	45		33	32	30	29
	46		32	30	30	28
	47		17	16	18	18
	48		12	12	20	20
	49		15	14	13	12
	50		10	9	13	13
	51		4	4	10	10
	52		8	7	3	3
	53		11	10	11	11
	54		7	7	8	8
	55		5	4	5	4
	56		5	5	5	5
	57		8	7	9	8
	58		8	7	11	10
	59		6	6	5	5
	60		3	3	4	4
	61		1	1	2	2
	62		2	2	3	3
	63		1	1	1	1
	64		1	1	4	4
	65		3	2	2	2
	66		3	3	3	3
	67		1	1	2	2
	68		3	2	3	3
	69		2	1	1	1
	70		2	2	2	2
	71		----	----	2	2
	72		2	2	1	1
	73		----	----	----	----
	74		1	1	----	----
	75		----	----	1	1
	76		----	----	----	----
	77		----	----	----	----
	78		2	2	2	2
	79		----	----	----	----
	80		1	1	----	----
	81		2	1	----	----
	82		----	----	----	----
	83		----	----	----	----
	84		----	----	----	----
	85		----	----	----	----
	86		----	----	----	----

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<u>Cols.</u>	<u>Codes</u>	<u>Item</u>	<u>One-Third Sample</u>		<u>Top 10% IQ Group</u>	
			<u>Total Respondents</u>	<u>Freq.</u>	<u>Total Respondents</u>	<u>Freq.</u>
299-300	87		1	1	----	----
	88		----	----	1	1
	89		----	----	----	----
	90		----	----	----	----
	91		----	----	----	----
	92		----	----	----	----
	93		1	1	----	----
	94		----	----	----	----
	95		----	----	1	1
	96		----	----	1	1
	97		1	1	----	----
	98		----	----	----	----
	99	Highest	----	----	1	1

<u>Codes</u>	<u>One-Third Sample</u>	
	<u>Total</u>	<u>Freq.</u>

Quartiles

01-07	2519	2143
08-13	2546	2216
14-21	2642	2337
22-99	2616	2311

Thirds

01-09	3358	2842
10-18	3552	3147
19-99	3407	3018

<u>Codes</u>	<u>Top 10% IQ Group</u>	
	<u>Total</u>	<u>Freq.</u>

Quartiles

01-12	827	754
13-20	866	789
21-30	896	800
31-99	832	755

Thirds

01-15	1155	1052
16-26	1142	1027
27-99	1123	1019

* See also the report on "The Education of the Negro" by the
  

Appendix B

Complete Correlation Matrices
For All Variables That
Were Candidates For
Operationalization for Comparative
Purposes

Contents:

Table 1 - Grade 12 male students in English schools

Table 2 - Legend

Note 1 - Brief interpretation of the matrix

Table 3 - Grade 10 & 12 male students in French and
bilingual schools

Table 4 - Grade 10 & 12 female students in French and
bilingual schools

[illegible]

TABLE 2

Legend

Mental Ability

- X_{1a} Mental ability, entire scale
- X_{1b} Mental ability categorized as high, medium and low (roughly thirds of the distribution).

Socio-Economic Status

- X_{2a} Fathers' occupation as measured by the complete 2 digit Blishen (1967) scale.
- X_{2b} Fathers' occupation as measured by the first digit of the Blishen (1967) scale.
- X_{2c} Combined parental education level as measured on a 16 point scale.
- X_{2d} Collapsed combined parental education level as measured on a 3 point scale (H, M & L)
- X_{2e} Fathers' education as measured on a 4 point scale.
- X_{2f} Mothers' education as measured on a 4 point scale.
- X_{2g} Fathers' occupation as classified in rough thirds of the distribution.
- X_{2h} Fathers' occupation as categorized by high (scores of 6 & 7 on the Blishen scale), medium (scores of 4 and 5), and low (scores of 2 and 3).

Academic Achievement

- X_{3a} Self reported academic achievement measured on a five point scale.
- X_{3b} School reported percentages
- X_{3c} School reported percentages as collapsed into a 5 point scale.

Significant Others' Influence

- X_{4a} Mothers' aspiration for the student as reported by the student on a threefold scale (work, other post secondary, university).
- X_{4b} Fathers' aspiration (as above)

Level of Educational Aspiration

- X_{5a} Level of educational aspiration as measured on threefold scale.
- X_{5b} Level of educational expectation as measured on threefold scale.

Level of Occupational Aspiration

- X_{6a} Occupational aspirations as measured on the complete 2 digit Blishen (1967) scale.
- X_{6b} Occupational aspirations as measured by the 1st digit of the Blishen scale.
- X_{6c} Occupational expectations as measured by the complete 2 digit Blishen scale.
- X_{6d} Occupational expectations as measured by the 1st digit of the Blishen scale.
- X_{6e} Occupational aspirations collapsed into high (codes 6 and 7 of the Blishen scale), medium (codes 4 and 5), and low (codes 2 and 3)
- X_{6f} Occupational expectations as collapsed (see above).

Note I
(based on Table I)

Although it is not suggested that higher correlations are an important criteria in selecting variables as candidates for comparative operationalization, nevertheless, it is interesting to note that in general the indices selected for the Wisconsin comparison correlate more highly with other variables in the model. In the first place X_{1a} , the full mental ability scale, correlated more strongly with all variables except Lea and Lee and in the latter case the correlations were very close - .251 versus .253. Secondly, all the possible indicators of SES show similar correlations with other possible variables in the model. However, two variables stand out - combined parental education and fathers' occupation as measured by the complete 2 digit Blishen scale. The latter correlates more highly with school reported grades but lower with fathers' aspirations and lower with Lee than does the former. However, fathers' occupation correlates higher with all possible indicators of occupational aspiration or expectation. Therefore, on the whole fathers' occupation seems to be superior. In the third place X_{3b} school reported grade percentage, correlates more highly with almost all possible indicators with the exception of some of the possible indicators of SES, than do the other possible indicators of academic achievement. Of the two possible indicators of significant others' influence there is very little to choose between the two candidates - mothers' aspirations and fathers' aspirations. The two possible indicators of level of educational aspiration were X_{5a} , Lea and X_{5b} , Lee. Of the two, Lee, in general, correlates higher than Lea with the full mental ability scale (.251 versus .227), with fathers' occupation (.202 versus .199), with school reported grades (.321 versus .271) and with occupational aspiration as measured by the 2 digit Blishen scale (.573 versus .521). Finally, of all possible indicators for occupational aspirations, occupational expectations as measured by either the 2 digit or 1 digit Blishen score correlate more highly with all other possible indicators for variables in the model.

[illegible]

[illegible]

Appendix C

Complete Correlation Matrix for All Possible Indicators in the Model for Grade 12 Boys in English Schools

Contents:

Table 1 - Complete correlation Matrix for all possible indicators in the model for Grade 12 boys in English schools.

Table 2 - Legend

Note 1 - Brief Interpretation of table 1.

TABLE 2

Legend

Mental Ability

- X_{1a} Mental ability, entire scale
- X_{1b} Mental ability categorized as high, medium and low (roughly thirds of the distribution)

Socio-economic Status

- X_{2a} Fathers' occupation as measured by the complete 2 digit Blishen (1967) scale.
- X_{2b} Fathers' occupation as measured by the first digit of the Blishen (1967) scale.
- X_{2c} Combined parental education level as measured on a 16 point scale.
- X_{2d} Collapsed combined parental education level as measured on a 3 point scale (H, M & L)
- X_{2e} Fathers' education as measured on a 4 point scale
- X_{2f} Mothers' education as measured on a 4 point scale
- X_{2g} Fathers' occupation as classified in rough thirds of the distribution
- X_{2h} Fathers' occupation as categorized by high (scores of 6 & 7 on the Blishen scale), medium (scores of 4 & 5), and low (scores of 2 & 3)

Self concept of Ability

- X_{3a} Self concept of ability (SCA), entire scale
- X_{3b} SCA, in fourths
- X_{3c} SCA, in thirds

Academic Achievement

- X_{4a} Self reported academic achievement measured on a five point scale.
- X_{4b} School reported percentages
- X_{4c} School reported percentages as collapsed into a 5 point scale.

Significant Others' Influence

- X_{5a} Mothers' aspiration for the student as reported by the student on a threefold scale (work, other post-secondary, university)
- X_{5b} Fathers' aspiration (as above)
- X_{5c} Mothers' aspiration for the student as reported by the student on a 1-10 scale
- X_{5d} Fathers' aspiration (as above)

Program

- X_{6a} Students' program, 5 year; 4 year
- X_{6b} Students' program, 5 year Arts and Science, other 5 year, 4 year

Level of Educational Aspiration

- X_{7a} Level of educational aspiration as measured on a threefold scale.
- X_{7b} Level of educational expectation as measured on a threefold scale.
- X_{7c} Level of educational aspiration as measured on the 1 - 10 scale
- X_{7d} Level of educational expectation as measured on the 1 - 10 scale
- X_{7e} Level of educational aspiration as measured on the 1 - 10 scale collapsed into three categories.
- X_{7f} Level of educational expectation (as X_{7c} above)

Level of Occupational Aspiration

- X_{8a} Occupational aspirations as measured on the complete 2 digit Blishen (1967) scale
- X_{8b} Occupational aspirations as measured by the 1st digit of the Blishen scale
- X_{8c} Occupational expectations as measured by the complete 2 digit Blishen scale
- X_{8d} Occupational expectations as measured by the 1st digit of the Blishen scale.
- X_{8e} Occupational aspirations collapsed into high (codes 6 & 7 of the Blishen scale), medium (codes 4 & 5), and low (codes 2 & 3)
- X_{8f} Occupational expectations as collapsed (see above).

Note - 1

Of all the possible indicators for the variables in our model, the variables selected, on the whole, correlate more strongly with other variables in the model. This result is not presented as the rationale for operationalizing variables but rather as a finding which lends support to the rationale. The entire mental ability scale correlates more strongly than does the collapsed mental ability scale with all possible indicators except LEA and LEE on a threefold scale and in these cases the correlations are so close that no significance can be attached to the difference (.227 vs .232 and .251 vs .253). Father's occupation as measured by the 2 digit Blishen (1967) scale correlates more strongly with the entire self concept of ability scale, with school reported percentages, with mother's aspiration on the 1-10 scale, with student's program of study, with LEE on the 1-10 scale, with LOE on the 2 digit Blishen (1967) scale than all other indicators of SES except one. Combined parental education correlates more strongly than Father's occupation with program and LEE. The entire self concept of ability scale consistently correlates more strongly than do the collapsed scales with all possible indicators. Mothers aspiration on the 1-10 scale correlates more strongly than other possible indicators of family influence with mental ability. Father's aspiration correlates slightly more strongly with the other variables in the model. The differences, however, are insignificant. Of all the indicators of LEA, LEE on the 1-10 scale

correlates most strongly with mental ability, fathers occupation on the 2 digit Blishen, the entire SCA scale, school reported percentages, fathers aspirations, program and occupational expectations on the 1 digit Blishen scale. Occupational expectations on the 2 digit Blishen scale correlates more strongly with the 2 digit Blishen measure of SES, the entire SCA scale, school reported grade percentages, and mother's aspirations. Occupational expectations on the 1 digit Blishen correlate most strongly with mental ability, program, and LEL on the 1-10 scale. These differences between the 2 digit and the 1 digit Blishen are slight, however, and the general point is that expectations correlate more strongly than aspirations with other variables in the model.

Appendix D

Construction of the LEE Scale

Contents:

1. Note on scale construction
2. Illustrative table D-1

Note on Scale Construction

Level of educational expectation was viewed as being composed of two dimensions - (1) how far the student expects to go in school, and (2) what the student expects to do after high school. Accordingly, the two questions "...how far do you actually expect to go?" where the response categories were the various high school grade levels, and "What do you actually expect to do after leaving high school?" where the response categories were: work; apprenticeship or private commercial, business or trade school; teacher's college or nursing school; community college; university but probably not graduate; graduate from university; post graduate studies; were combined into an interval-type scale ranging from 1 to 10 where one increment on the scale represents some additional level of attainment in the educational hierarchy. Thus, go to grade 8 and then to work represents a 1 on the scale while complete grade 13 and take post graduate studies represents a 10. The detailed combination of responses is shown in table D-1.

Combination of High School Expectations with Post High School Expectations

Blank Cells = Missing Data

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Appendix E

Results of Path Analysis When Program is Used As A Control Variable Rather Than As an Intervening Variable

Contents:

1. Brief note interpreting the models.
2. Table E-1 summarizing the path coefficients for all models.
3. Diagrams E 1-8 illustrating the models.
4. Correlation matrices (tables E-2 to E-9) which produced the path coefficients.

Brief Note Interpreting the Models

As diagrams E1 to E8 indicate and as table E-1 summarizes, the results of this analysis parallel the analysis of the complete extended model. Family influence and self concept of ability are the prime determinants of LEE and LOE for students in both four and five year programs. Generally, family influence is the prime determinant of LEE and SCA is the prime determinant of LOE. Academic achievement does not display any strong direct paths to either LOE or LEE. However, in these models academic achievement does relate more strongly to family influence for both boys and girls in the 5 year programs than for boys and girls in the 4 year programs. For example, $p_{5,4} = .257$ for grade 12 boys in the 5 year programs whereas $p_{1,4} = .012$ for grade 12 boys in the 4 year programs. This result is uniform for grade 12 girls and for both boys and girls in grade 10. It suggests that if a student is in one of the 5 year programs then exhibited school performance will cause others to raise their expectations for their child. If the student is in one of the four year programs, however, school performance is not related to mother's aspirations. Another difference in relationships between the 5 year and the 4 year programs is that self concept of ability is more strongly related to academic achievement for the 5 year students than for the 4 year students. For example, $p_{4,3} = .608$ for grade 12 boys in five year programs but only $.459$ for grade 12 boys in 4 year programs. Hence, it appears that being in any of the 4 year programs serves to dampen the expectations of students and

and also limits the relationships to other variables in the model.

In line with this it should be mentioned that most paths are generally weaker for students in the 4 year programs. As a result the model does not explain as much of the variance (perhaps because there is not as much variance to explain) in the LEE and the LOE of students in the four year programs. For example, the model explains 46% of the variance in the LEE of grade 12 boys in 5 year programs and 25% of the variance in LOE. For those in four year programs the variance explained drops to only 24% and 12%. It should be noted that even the model for those in 5 year programs does not explain as much of the variance as did the complete extended model presented in Chapter 5.

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TABLE E-1

Path Coefficients for Antecedents of
Educational and Occupational Expectations
for each Comparison Group

Dependent Variable and Comparison Group		Independent Variables					R ²
		MA	SFS	SCA	A.A.	FAM. INFLU.	
		X ₁	X ₂	X ₃	X ₄	X ₅	
Grade 12 Boys in 5 Year Program							
SCA	X ₃	.213	.148	-	-	-	.07
A.A.	X ₄	.152	-	.608	-	-	.43
FAM. INFLU.	X ₅	-	.133	-	.257	-	.09
LEE	X ₆	-	-	.414	-.014	.420	.46
LOE	X ₇	-	-	.457	-.066	.170	.25
Grade 12 Boys in 4 Year Program							
SCA	X ₃	.129	.083	-	-	-	.03
A.A.	X ₄	.146	-	.459	-	-	.25
FAM. INFLU.	X ₅	-	.118	-	.012	-	.01
LEE	X ₆	-	-	.237	.052	.361	.24
LOE	X ₇	-	-	.254	.035	.170	.12

Grade 12 Girls in
5 year Program

	X_1	X_2	X_3	X_4	X_5	R^2
SCA X_3	.194	.168	-	-	-	.87
A.A. X_4	.089	-	.680	-	-	.50
FAM. INFLU. X_5	-	.149	-	.283	-	.11
LEE X_6	-	-	.288	-.021	.569	.51
LOE X_7	-	-	.227	.058	.202	.15

Grade 12 Girls in
4 year Program

SCA X_3	.103	.002	-	-	-	.01
A.A. X_4	.087	-	.452	-	-	.22
FAM. INFLU. X_5	-	.147	-	.074	-	.03
LEE X_6	-	-	.174	-.111	.549	.33
LOE X_7	-	-	.262	-.031	.192	.11

Grade 10 Boys in
5 year Program

SCA X_3	.229	.158	-	-	-	.09
A.A. X_4	.169	-	.587	-	-	.42
FAM. INFLU. X_5	-	.111	-	.231	-	.07
LEE X_6	-	-	.442	-.024	.423	.49
LOE X_7	-	-	.374	.049	.206	.27

		X_1	X_2	X_3	X_4	X_5	R^2
Grade 10 Boys in 4 year Program							
SCA	X_3	.135	.056	-	-	-	.02
A.A.	X_4	.073	-	.307	-	-	.11
FAM. INFLU.	X_5	-	.183	-	.015	-	.03
LEE	X_6	-	-	.322	.004	.446	.39
LOE	X_7	-	-	.141	.101	.179	.09

Grade 10 Girls in
5 year Program

SCA	X_3	.167	.152	-	-	-	.06
A.A.	X_4	.154	-	.508	-	-	.42
FAM. INFLU.	X_5	-	.145	-	.217	-	.08
LEE	X_6	-	-	.396	.006	.497	.54
LOE	X_7	-	-	.396	.027	.225	.21

Grade 10 Girls in
4 year Program

SCA	X_3	.139	.008	-	-	-	.02
A.A.	X_4	.203	-	.406	-	-	.23
FAM. INFLU.	X_5	-	.211	-	.076	-	.05
LEE	X_6	-	-	.331	.007	.468	.43
LOE	X_7	-	-	.144	.080	.254	.13

DIAGRAM E-1

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 12 Boys in 5 Year Programs.

DIAGRAM E-2

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 12 Boys in 4 Year Programs.

DIAGRAM E-3

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 12 Girls in 5 Year Programs.

DIAGRAM E-4

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 12 Girls in 4 Year Programs.

DIAGRAM E-5

Path Coefficients for Antecedents of Educational and Occupational Expectations for Grade 10 Boys in 5 Year Programs

DIAGRAM F-6

Path Coefficients for Antecedents of Educational and Occupational Expectations for Grade 10 Boys in 4 Year Programs

DIAGRAM E-7

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 10 Girls in 5 Year Programs

DIAGRAM F-8

Path Coefficients for Antecedents of Educational and Occupational Expectations of Grade 10 Girls in 4 Year Programs

TABLE E-2

Correlation Matrix on Grade 12 Boys
in 5 Year Programs in English Schools

	MA	SES	SCA	A.A.	FAM. INFLU.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁	-					
X ₂	.054	-				
X ₃	.221	.159	-			
X ₄	.286	.025	.641	-		
X ₅	.130	.139	.361	.260	-	
X ₆	.112	.130	.557	.361	.566	-
OCC. EXP. X ₇	.153	.209	.476	.271	.318	.511

N = 869

Operationalization:

- X₁ Mental ability, entire scale
- X₂ Fathers' occupation as measured on the complete 2 digit Blishen (1967) scale
- X₃ Self concept of ability, entire scale
- X₄ Academic achievement, school reported percentages
- X₅ Mothers' aspiration on the 1-10 scale
- X₆ LEE on the 1-10 scale
- X₇ Occ. Exp. on the 2 digit Blishen (1967) scale

TABLE E-3

Correlation Matrix on Grade 12 Boys
in 4 Year Programs in English Schools

	MA	SFS	SCA	A.A.	FAM. INFLU.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁	-					
X ₂	.092	-				
X ₃	.137	.095	-			
X ₄	.209	.011	.479	-		
X ₅	.163	.118	.226	.013	-	
X ₆	.088	.069	.343	.170	.415	-
OCC. EXP. X ₇	.065	.123	.309	.159	.228	.464

N = 519

TABLE E-4

Correlation Matrix on Grade 12 Girls
in 5 Year Programs in English Schools

	MA	SFS	SCA	A.A.	FAM. INFLU.	LFE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁	-					
X ₂	.112	-				
X ₃	.213	.190	-			
X ₄	.234	.129	.699	-		
X ₅	.125	.185	.358	.302	-	
X ₆	.121	.181	.477	.352	.666	-
OCC EXP X ₇	.068	.102	.340	.278	.301	.455

N = 867

TABLE E-5

Correlation Matrix on Grade 12 Girls
in 4 Year Programs in English Schools

	MA	SES	SCA	A.A.	FAM. INFLU.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁	-					
X ₂	.032	-				
X ₃	.103	.005	-			
X ₄	.134	.051	.461	-		
X ₅	.102	.151	.082	.082	-	
X ₆	.101	.222	.168	.014	.554	-
OCC EXP X ₇	.090	.097	.264	.106	.211	.341

N = 454

TABLE E-6

Correlation Matrix on Grade 10 Boys in
5 Year Programs in English Schools.

	MA	SES	SCA	A.A.	FAM. INFLU.	LL-E
	X_1	X_2	X_3	X_4	X_5	X_6
X_1	-					
X_2	.128	-				
X_3	.249	.187	-			
X_4	.315	.125	.629	-		
X_5	.216	.140	.359	.245	-	
X_6	.207	.206	.579	.358	.576	-
OCC EXP	.177	.208	.478	.354	.352	.529

N = 830

TABLE E-7

Correlation Matrix on Grade 10 Boys in
4 Year Programs in English Schools

	MA	SES	SCA	A.A.	FAM. INFL.	LEF
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁	-					
X ₂	.032	-				
X ₃	.137	.060	-			
X ₄	.115	.086	.317	-		
X ₅	.154	.182	.289	.001	-	
X ₆	.138	.192	.452	.106	.539	-
OCC EXP X ₇	.102	.110	.225	.146	.220	.417

N = 543

TABLE F-8

Correlation Matrix on Grade 10 Girls
in 5 Year Programs in English Schools

	MA	SES	SCA	A.A.	FAM. INFLU.	LIF
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁	-					
X ₂	.152	-				
X ₃	.190	.177	-			
X ₄	.268	.123	.627	-		
X ₅	.053	.172	.341	.235	-	
X ₆	.079	.194	.569	.371	.634	-
OCC EXP X ₇	.120	.137	.400	.272	.336	.399

N = 810

TABLE E-9

Correlation Matrix on Grade 10 Girls in
4 Year Program in English Schools

	MA	SES	SCA	A.A.	FAM. INFLU.	LEE
	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆
X ₁	-					
X ₂	.021	-				
X ₃	.139	.011	-			
X ₄	.259	.113	.434	-		
X ₅	.121	.220	.332	.100	-	
X ₆	.166	.152	.494	.184	.578	-
OCC EXP	X ₇	.066	.117	.263	.310	.440

N = 340

END

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FIN