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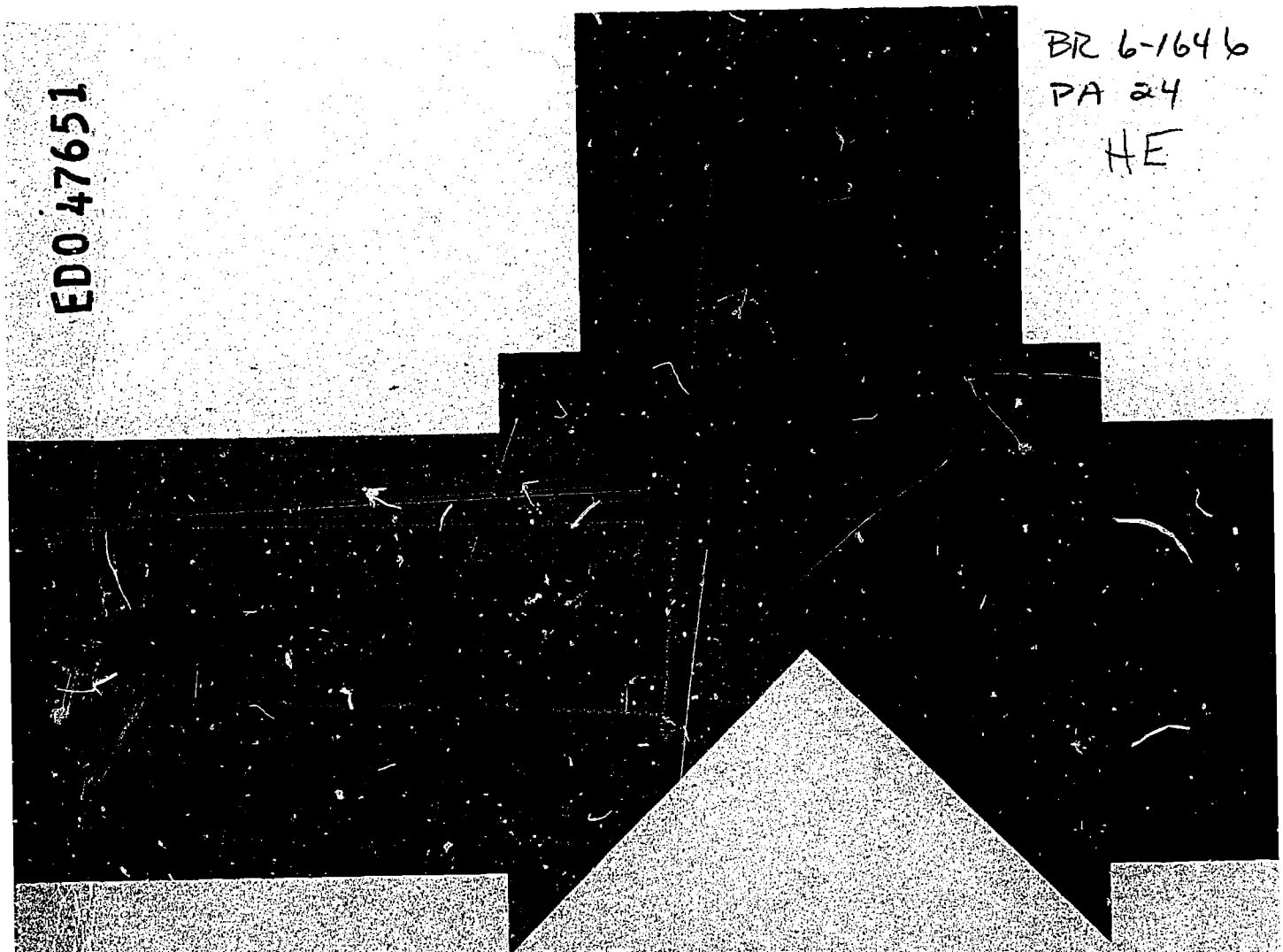
ABSTRACT

This study has 3 major objectives: (1) to synthesize and analyze research on socio-psychological factors associated with the decision to enter college, (2) to derive from this analysis a model useful to program implementation intended to improve recruitment and retention of college students, and (3) to consider implications of the results of the first 2 objectives for federal policy on universal higher education. Section 1 discusses the influence of family and peers on college attendance, including such factors as socioeconomic status, religious subculture, and minority status. Section 2 deals with the influence of community and schools on college attendance: and section 3 deals with personal traits, such as academic aptitude, motivational factors and determinants, and other personality traits. Section 4 considers the multidimensional determinants and models of decisionmaking. The conclusion summarizes the many factors that influence the aspiration to attend college, as well as access to higher education. An extensive bibliography concluded the report. (AF)



THE DECISION TO GO TO COLLEGE: AN ACCUMULATIVE, MULTIVARIATE PROCESS

James W. Trent

CSE Report No. 64
November 1970

CENTER FOR THE STUDY OF EVALUATION

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by

James W. Trent

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Center for the Study of Evaluation
UCLA Graduate School of Education
Los Angeles, California

PREFACE

The monograph contained herein was commissioned under the auspices of the Program Planning Evaluation and Reports section of the Office of Education's Bureau of Higher Education. It is one of a series of papers designed to provide evaluative information relative to the formation of federal policy on universal higher education. An abridged version of the monograph appears with the other papers in Trends in Post-Secondary Education scheduled to be published by the Government Printing Office late in 1970.

The present monograph has three major objectives: (1) to synthesize and analyze research on social psychological factors associated with the decision to enter college; (2) to derive from this analysis a model useful to program implementation intended to contribute to improved recruitment and retention of college students; and (3) to consider implications of the results of the first two objectives for federal policy on universal higher education.

Mr. Theordore Kildegaard, of the Center for Research and Development in Higher Education, ably took the responsibility for the multi-variate analyses that contributed to the college-entrance model. The ERIC Clearinghouses on Higher Education and Junior College Information generously provided their services and facilities; particularly Dr. Arthur Cohen, Director of the Junior College Clearinghouse, Mr. Michael Capper of the Junior College Clearinghouse, and Mrs. Lora Robinson of the Higher Education Clearinghouse were most helpful in assembling pertinent references. Mr. James Burry, Mrs. Lenois Stovall, and Mrs. Barbara Vizents were equally helpful in the review and production of the monograph.

TABLE OF CONTENTS

INTRODUCTION

Contemporary American society, technocratic and complex, contains singular opportunities and problems. Its technocracy and affluence affords most of its citizens an unprecedented style of life in terms of goods, services, and leisure. It also presents enormous problems having to do with deep unrest and conflicts of values among its citizens, the homeostasis of its economy, the preservation of its ecology, its relations with less advantaged but interdependent nations, and the maintenance and nurture of the institutions upon which it is dependent for its viability.

The judgment here is that America's citizens must be unusually enlightened and competent in order both to make appropriate uses of its opportunities and to deal with its problems. It is quite possible that universal higher education has become a major means, if not a prerequisite, for such a citizenry. In this context the national goal of providing higher education for all who can profit from it is not only commendable but essential.

Mere rhetorical espousal of universal higher education, however, is of no avail. Sufficient financial and professional support of appropriate programs must follow before universal higher education can be implemented. This kind of support is not evident at the present time. But even if it can be assumed that it will be available it will not be effective without equally sufficient knowledge of the social-psychological factors that contribute to young adults' decisions either to attain a higher education or to reject this opportunity. As a case in point, current research indicates that should the federal government offer financial assistance to every individual who could not otherwise afford college, this would probably make a difference only to a

minority of academically able college-age youths who are not now in college.

Clearly, both academic aptitude and financial status contribute to the decision to enter college. Clearly, too, for a great many individuals, much more is involved than these two factors, and programs designed to promote higher education must also take many other important factors into account. Therefore, those educators and officials responsible for the provision and progress of higher education urgently need a close knowledge of the relative influence of the many factors that contribute to the individual's decision to enter college and make use of its opportunities.

Behaviorally, a decision may be taken as "the formulation of a course of action with intent to execute it" (English & English, 1961). The determination to enter college is not generally a spontaneous decision, but rather the result of numerous complex factors that have occurred over a long period of time, from early childhood to the point of conscious intent to enter college and that continue to contribute to persistence in college. To the writer's knowledge only one major study (Tillery, Sherman & Donovan, 1969), yet to be completed, has been designed from its inception primarily to trace sequentially the process of decision-making regarding college. Voluminous research, however, has dealt with numerous individual factors related to college aspiration and attendance. More recently some research has examined the comparative association or influence of complexes of interrelated variables on the decision to enter college and actual attendance (Flanagan, et al, 1964; Dole & Weiss, 1968; Trent & Medsker, 1968; Trent, in press). In a few cases

models are being developed in order to predict and deal with the decision to attend college (Clarke, et al, 1965; Gelatt, 1966; Seron, 1967; Trent in press).

This paper includes discussion of the nature and implications of the research as it pertains to the following sources of influence on college-going: family and peers; the community and school environment; and personal traits. Subsequent discussion centers on multivariate models for prognosis and alteration of decision-making related to college-going. Problems and propositions for future action in this context constitute the concluding discussion.

FAMILY AND PEERS

Over a decade ago three state-wide surveys of young adults were conducted to determine the factors related to college attendance (Little, 1959; Stroup & Andrea, 1959; Wright & Jung, 1959). Prevalent factors related to college attandance evident from Beezer and Hjelm's (1961) synthesis of the surveys were academic aptitude, socioeconomic status, high school scholastic achievement, motivation, size of high school, peer group influence, parental influence, ethnic background, and community characteristics. Research throughout the last decade verifies the continued potency and prevalency of these variables regarding college-going. As will be seen in the discussion of Personal Traits, there is some question as to whether socioeconomic status or academic aptitude has the greater influence on the decision to attend college. There is also some question as to whether parents or peers have the greater influence. There can be no question, however, that each of these factors are relevant, singularly or interdependently.

Socioeconomic status. Major indices of socioeconomic status are parents' education and father's occupation. High socioeconomic status generally implies college education and a professional occupation; a low level status generally indicates failure to complete elementary or high school and a semi- or unskilled occupation. Socioeconomic status may be measured along a continuum from high to low, and associated with differences in socioeconomic status are differences in financial status and values among families and individuals that have great bearing on educational aspirations.

Individual research projects and a number of reviews of numerous studies consistently verify the relationship between socioeconomic status and educational aspiration and attainment.[1] Examination of this research directly or of reviews of the research leads to several major conclusions:

(1) There is a high positive correlation between the educational attainment and occupational achievement of the father, determined by the status of the job and the income it produces. Similarly, there is a higher positive correlation between the father's occupational achievement and the educational aspirations and achievements of his children.

(2) Students whose fathers' occupations are classified as at the high socioeconomic level (professional and managerial) increase

[1] See Baird (1967); Beezer and Hjelm (1961); Berdie and Hood (1965); Berelson and Steiner (1964); Brown (1966); Clark (1960); Coster (1963); Crawford (1967); Cross (1968); Geiger (1955); Gysbers (1968); Havighurst and Neugarten (1967); Little (1959); Medsker and Trent (1965); Pearl (1962); Rosenski (1965); Sanders & Palmer (1965); Schoenfeldt (1968); Stroup and Andrea (1959); Trent (in press); Trent and Medsker (1968); Vernes (1965); Werts (1967); Wright (1959). In a number of cases only abstracts were available during the development of this monograph. Therefore conclusions are reported at times without sufficient knowledge about the research methodology indicating the validity of the conclusions.

in the proportion of their representation from grammar school to college so that there is an over-representation of college students of high socioeconomic status. Students of low socio-economic status are for the most part precluded from higher education. The only exception is in the junior colleges, but even here lower socioeconomic status students usually withdraw without completing either a vocational or transfer program.

(3) The relationship between socioeconomic status and type of college entered extends beyond the junior college; for example, students in liberal arts colleges, universities and private institutions are over-represented at the high level of socioeconomic status and students attending teachers colleges and many state colleges are under-represented. The widest range of socioeconomic status is found in the junior college, but just as it has the largest representation of low socioeconomic status students, so it has the smallest representation of high status students. One study based on a nationwide sample indicates that socioeconomic status is a primary determinant of both college choice and vocational orientation (Baird, 1967b).

(4) The chances that children with superior intelligence will attend college increase with their socioeconomic status. In recent years there has been an increase in proportions of students who attend college, and in some regions a majority of high ability students of low socioeconomic status enter

college. Yet, the distribution of socioeconomic status has not changed among college students in spite of increased numbers of colleges since 1945, an increased proportion of high school graduating classes who enter college generally, and an increase in college attendance among the brightest of low socioeconomic students. The phenomenon of withdrawal occurs over the entire range of socioeconomic status, but a disproportionate number of withdrawals are of low socioeconomic status, even when ability is held constant.

(5) The relationship between socioeconomic status and college entrance varies by sex. Caucasian men of high socioeconomic status are the most likely to enter college, particularly if they receive high grades in high school. High ability and high socioeconomic status women differ only negligibly from the men in this respect, but when achievement is not exceptionally high proportionately fewer women than men enter college, particularly at the lower levels of socioeconomic status.

(6) There is evidence that financial assistance is an important factor in the decision to enter college, especially for high ability, low socioeconomic students. There is also ample evidence, however, that the socioeconomic environment of the family, independent of both ability and finances is a significant factor in a student's determination of the level of education he undertakes after high school. The fact is that the economic factor is not the key variable in the decision to

enter college, regardless of socioeconomic status. This is indicated in studies of relatively small groups (Schoenfeldt, 1968); it is equally evident from interviews and surveys of thousands of youths across the country (Trent & Medsker, 1968). It is also true in Denmark where state financial support for university students has been established for years (Geiger, 1955).

Socioeconomic environment as a complex process. The earlier statement that socioeconomic status is more than a matter of educational or financial status but also a matter of differential values and behavior should now be clear. Perhaps it is better conceived as a complex environmental process acting on the decision-making and other important aspects of a young person's life. It is centered in the family where its dynamics have the most critical effect; and that effect bears on the individual's entire life-line wherever he goes, and in whatever environment beyond his family. A number of studies indicate attributes related to the socioeconomic environment that contribute to an understanding of its dynamics and which suggest the manner in which it effects the decision to enter college.[2] Based on such research a number of generalizations may be made:

(1) The higher one's socioeconomic status, the greater are his contacts with all socioeconomic levels, and the greater are his range of experiences and opportunities for choice

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[2] See Bailey (1966); Berdie and Hood (1965); Berelson and Steiner (1964); Colorado State University (1966); Coster (1963); Dublin (1958); Grinder (1967); Gross (1959); Hollingshead and Redlich (1958); Hyman (1956); Jennings and Niemi (1968). Kahl (1953); Knupfer (1947); Strodtbeck et al. (1957).

generally. This may help account for the fact that the higher one's socioeconomic status, the greater the value he places on higher education for means and ends, including information and knowledge. The interpretation here is that broadened experiences create new interests and the need for knowledge to satisfy these interests.

(2) Parents at all socioeconomic levels are a potential influence on the values and behavior of their children. This adds to the significance that middle class parents, much more than those of lower socioeconomic status, stimulate a need for achievement and encourage their children to achieve more, both in acadamic and in non-academic areas. Recent research indicates that a majority of parents at all socioeconomic levels would like their children to have a higher education but, as noted, upper socioeconomic level parents place much more stress on higher education, take a greater interest in it for more reasons, and do much more to encourage their children to attain a higher education.

(3) The differences in the range of experiences, interests, and values that distinguish among levels of socioeconomic status no doubt contribute to the differences in attitudes and behavior found among students of different socioeconomic levels. Grinder's (1967) research might be interpreted to this effect. He hypothesized that among adolescent boys a strong orientation towards the father rather than peers

(that is, disinterest in the "youth culture") is predictive of involvement in college-bound high school programs and that, conversely, peer orientation rather than identification with the father is predictive of dropout status. The conclusion was that in as much as his subjects could be classified as belonging to college-bound programs, general programs, or as potential withdrawals, the hypothesis was confirmed with statistically significant accuracy according to his schematic. More specifically, lack of involvement in school activities was associated with low academic standing, low academic aspirations, low father-son agreements, and low socioeconomic status. Indications were that peer orientation was given impetus by low regard for father's occupation, and the two factors combined to reduce commitment to school.

(4) Corollary findings are manifest in most of the other research previously cited dealing with the socioeconomic environment. Indications are that socioeconomic status determines environmental conditions which, in turn, condition such personality variables as academic self-concept and need for achievement, and these variables differentiate college-bound and non-college subjects. The results appear not only in the greater motivation, persistence, and achievement of higher socioeconomic status students compared with those of lower status; the higher status students also are more frequently social leaders, are perceived by others as more competent, have more influence on others, participate more in extra-curricular

and other activities and, as college-bound students, tend to be more sociable, less shy, and to have fewer conflicts with their families and authority. Lower status students, instead show dependence on but also distrust for authority, are more resigned to physical and psychological suffering (at least in the past), have an inferior self-concept and a personality more characterized as limited, restricted, and authoritarian. Knupfer's (1947, p. 114) conclusion is pertinent if not largely explanatory in this context:

> Closely linked with economic underprivilege is psychological underprivilege: habits of submission, little access to sources of information, lack of verbal facility. These things appear to produce a lack of self-confidence which increases the unwillingness of the low-status person to participate in many phases of our predominantly middle-class culture.

The press of parent. Berelson and Steiner's (1964) review of the literature presents substantial evidence that opinions, attitudes, and beliefs are "inherited" from parents; they are learned in early childhood and persist into adulthood. Without getting into the extensive material on role theory, argument can be made that parents are the first significant influence in the individual's life and, as "significant others," determine more than anyone else the individual's self perception, including his conception of his position in society and the role he is to play in that position (Trent, 1967).

Obviously, therefore, parental influence is a dominant if not paramount factor in the individual's perception of education and the resultant decisions he makes about it. The attitudes he has about education, and the role he sees for himself as an adult in relation

to his education, generally originate with his parents and bear directly on the approach he takes toward his education. Subsequent discussion of minority students and the personal traits related to achievement and aspiration touches on how parental values are transmitted. The task for the moment is to describe the relationship more specifically.

One of the most broadly based samples to provide information about the relationship was the approximately 10,000 students in 37 high schools across the country whom Trent and Medsker (1968) first surveyed as high school seniors and then followed up for another five years. Twice as many eventual college attenders as nonattenders reported in the original survey that they had been encouraged by their parents to enroll in college. Nearly 70% of the students who later entered and persisted in college reported while they were still in high school that their parents definitely wanted them to attend college, compared with less than 50% of the withdrawals and less than 10% of the nonattenders. They also reported having discussed college plans more with their parents, having sought advice from their parents, and more interaction and rapport generally with their parents.

There was a relationship between parental encouragement and socioeconomic status, but the strong relationship between parental encouragement and college attendance persisted even when controlling for both academic aptitude and socioeconomic status simultaneously. This relationship may be examined in Table 1 reproduced from Beyond High School (Trent & Medsker, 1968), and since it represents a key factor in college going, commentary about the table is reproduced as well:

Table 1

PARENTAL ENCOURAGEMENT AS REPORTED BY SUBJECTS OF HIGH ACADEMIC APTITUDE, BY SOCIOECONOMIC STATUS (SES), IN PERCENTAGES*

SES and encouragement	(N)	Per-sisters	With-drawals	Non-attenders	Chi-square
High					
Strong encouragement	(295)	80	16	4	67.70**
Other	(73)	41	26	33	
Middle					
Strong	(606)	61	27	12	247.70**
Other	(436)	23	20	57	
Low					
Strong	(101)	50	28	22	67.56**
Other	(132)	8	21	71	

* Source: Trent and Medsker (1968)

** $p \leq .01$

These findings suggested the importance of inquiring into the kind of person who makes the greatest use of educational opportunities. Throughout this study certain factors--ability, socioeconomic status, intellectual disposition, and particularly parental encouragement--were consistently found to be related to student development and academic progress. It therefore seemed important to distinguish how these separate and interrelated factors affected the development of students.

Specifically, we wondered if, after holding the factors of ability and socioeconomic status constant, the same relationship already observed would be found between parental encouragement and progress in college, and also if high school and college personnel compensated for any lack of parental encouragement reported by the able but less motivated and intellectually oriented students.

Consequently, all graduates were selected who placed in the upper 30 percent of the sample's distribution of ability scores; of these, students who reported a great deal of parental encouragement to attend college were distinguished from those who did not report this kind of encouragement. The two groups were then additionally divided into persisters, withdrawals, and nonattenders. Thus, those of equally high ability who reported different family climates and differed in patterns of post high school education, could be compared on a number of the variables already studied in reference to the larger sample.

It was found that even when they shared the same high level of ability, the graduates grouped by different college patterns reported markedly different amounts of parental encouragement while seniors in high school, just as was observed for all persisters and withdrawals in data presented previously. Eighty percent of the persisters of high ability reported in 1959 that their parents definitely wanted them to attend college, compared with approximately 63 percent of the highly able withdrawals, and 22 percent of the highly able nonattenders. The relationship between persistence in college and parental encouragement of bright high school graduates also existed regardless of level of socioeconomic status (Table 1).

The differences at the high socioeconomic level set the key for the remainder of the table; among the students at this level who reported a great deal of encouragement from their parents, 80 percent were persisters, 16 percent withdrawals, and only 4 percent nonattenders. However, where strong parental encouragement was not reported at the high socioeconomic level, only 41 percent of the highly able students persisted in college, while 26 percent entered but withdrew, and 33 percent never entered. At the low socioeconomic level, when no strong parental encouragement was reported, 71 percent of the bright youths did not enter college.

Similar relationships were found to exist on the other variables examined: when the decision was made to attend college; the amount of importance given to graduating from college; and level of intellectual disposition (Trent, Athey, and Craise, 1965).

The decision to attend college was made even before high school by 70 percent of those who became persisters and who reported having been highly encouraged by their parents to attend college. Conversely, nearly 75 percent of the many bright nonattenders who were not encouraged by their parents reported no decision at all; over one-fourth of these students said they had not even discussed college with their teachers while in high school.

Regardless of post high school pursuit, advice about attending college from high school teachers and counselors was reported proportionately more by students who also reported strong encouragement from their parents. The largest proportion of students who reported having gotten such advice was among the future persisters whose parents urged college attendance (over 50 percent); the smallest proportion was among the nonattenders who had not been highly encouraged by their parents (about 30 percent).

Proportionately, more persisters sought advice from counselors than from teachers, whereas the bright nonattenders reported seeking advice somewhat more from teachers than from counselors. This finding suggests that since teachers are in direct contact with their students, they may be better able than counselors to recognize or at least to work with students who are not realizing their potential. Counselors, on the other hand, may be fully occupied by the task of assisting students already directed toward college goals. In any event, of students at the high ability level, 76 percent of the persistors and 61 percent of the withdrawals who had had parental encouragement reported having been highly encouraged to attend college by their high schools, a difference significant beyond the 1 percent level ($Z = 3.85$). Of the academically able students who were not encouraged by their parents to attend college, 61 percent of the persisters and 54 percent of the withdrawals reported they were not encouraged by their high schools, a difference, however, that was not statistically significant ($Z = 1.36$). Persisters consistently more than withdrawals reported parental encouragement, but what remains even more significant statistically is that both the persisters and withdrawals who reported less parental encouragement than their more highly encouraged classmates also reported receiving less encouragement from their high schools ($Z = 4.67$; $p < .01$).

More will be said later about the influence of school counselors and teachers on the decision to attend college. In the meantime the evidence is that even the action of school personnel is not independent of family values. Others who have found a significant relationship between parental values and educational aspiration, decision-making, and achievement include: Berdie and Hood (1965), Bloom (1964), Jaffe and Adams (1964), Levenson (1965), Little (1959), Sexton (1965), Slocum (1956), and Werts (1967).

Research of this kind has led Rehberg (1966) to arrive at what he considers a provisional model that posits elements that could be anticipated from the above review. These include the conditions that parents' education is a partial determinant of the family's socioeconomic status, that parents' education and social status influence adolescent educational expectations through the intervening variable of parental pressure and independent of it, and that there is a negative relationship between family size and parental encouragement for children to continue their education. (The latter instance may result from the inability of parents of large families to give adequate individual attention to their children, apart from socioeconomic status and values associated with large families).

In addition to parental expectations and encouragement, other characteristics of parents are associated with college attendance among their children. The greater interaction between college-bound children and their parents has already been noted. The college bound, compared with the nonattenders in the Trent-Medsker (1968) sample, also reported their parents to be more ambitious, energetic, intellectual, loving, and orderly--traits presumably conducive to an achievement-oriented, supportive family climate. In contrast, the students who decided against college were more likely to report their parents to be easygoing and quick tempered.

The implication of this last finding is that parents of noncollege youths show some greater tendency toward negative traits, at least in terms of indifference and display of temper. This negativism may have bearing on the findings from several independent studies of students who not only failed to enter college but also failed to complete high school (Maryland State Department of Education, 1963; Pearl, 1962). Forty-three %

of the parents of the dropouts had been involved with crime or delinquency. One half of them encouraged their children to leave school or were indifferent to the decision, even though 52% of the parents were unskilled or unemployed and one third of them were on welfare. Perhaps most significant in terms of the influence of parents as models is the fact that approximately 80% of the parents of the dropouts had themselves dropped out of school.

Peer and parent. The work of Coleman (1961) and the research contained in Newcomb and Wilson's (1966) volume provide ample evidence of the peer group's influence on the adolescent's and young adult's behavior, whether in terms of social activities, dress, educational decisions, or goals. Coleman concludes that for adolescents, at least, the peers' influence prevails over that of parents. This, however, is questionable.

As in other research, the high school seniors in the Trent-Medsker (1968) sample who were planning to attend college reported the same plans for most of their friends. But upon looking back on their lives four years later they reported their parents to be far more helpful and influential than anyone else, including friends and teachers. This was true of both those who had entered college and those who had not, but it was especially true of the college attenders. Drabick (1967), who examined this issue among adolescents in reference to educational and occupational decisions, specifically found that youths largely saw their basic decisions as their own, but parents as the most important external influence. This was also evident in Bordua's (1960) cross-tabulations which included as factors independently related to college aspirations, religious background, socioeconomic status, and parental stress.

Some research indicates that the relative influence of peers and

parents on decision-making depends upon the specific situation. Solomon (1961) presented a sample of adolescents with four hypothetical situations, then first asked how they would respond to them if they were "real" situations, and second whether parents, peers, their own values, or their impulses would be most influential in their decisions. Three of the situations had to do with social behavior (going steady, breaking a friendship, attending a party, or visiting an aunt). Values and impulses were of the most influence in deciding about these situations. The fourth situation (copying) was the only one that had to do with academic (and moral) behavior and in this case parents were most influential.

Brittain (1963) conducted a similar study, presenting his sample with 12 situations through his "Cross-Pressure Test." Most of the items had to do with jobs, activities, conduct (again moral), and dress. Peer influence dominated on only three items--the two items on dress and the one having to do with which course to take (perhaps having more to do with the decision to be in a class with friends than serious educational decisions). Parents were of most influence on the one situation having to do with academic achievement (selection for honors) as they were on all other items save one (which boy to date steadily) where influence was equal.

Simpson's (1962) study of adolescents' occupational decisions suggests a key to the relative influence of parent and peer. Parents had a greater effect on decision-making though differences were not reported as statistically significant. More important, perhaps, is that aspirations were highest under the influence of both parents and peers, and lowest when neither were influential. In other words the effect is

cumulative, a notion that will be discussed further in the final section of this paper. The fact is that parents initiate values and provide the environmental setting where friends of comparable socioeconomic status and concomitant values will be chosen. Berelson and Steiner (1964) summarize the logical result on the basis of Kahl's (1957) research to the effect that normally the individual's peer group "reinforces the classifying attributes and tendencies of the parental family" (p. 469).

Religious subculture. An important correlate of family status is religious background. It is important in this context particularly since religious background has a demonstrated effect on educational attitudes and activities which is intermixed with and also independent of socioeconomic status and academic aptitude. A separate treatise would be necessary to develop this topic properly, and an introductory review may be found elsewhere (Herberg, 1960; Lenski, 1963; Trent, 1967). Consequently, only a brief summary example of aspects of religious influence on educational behavior follows.

For the last many decades Jews have been highly over-represented in college and Catholics and fundamentalist Protestants under-represented. The representation of white, "middle" Protestants has consistently fallen between these two extremes. These differences may in part be accounted for by values espoused by different ethnic groups, as indicated in the next section on minority students. There is no doubt that socioeconomic status has also been related to these differences. Catholics, for example, largely of immigrant background, have been heavily over-represented at the lower levels of socioeconomic status.

More has been involved, however, than ethnic background or socio-

economic status, in the relative lack of college attendance and subsequent scholarly productivity among Catholics. Until very recently Catholics were under-represented among youths studied (most of whom were Anglo-Saxon) who were planning to attend college and who actually did attend. This finding appeared even when controlling for socioeconomic status (Trent, 1967). Much of this phenomenon can be attributed to a close church-family-self system where religious values perpetrated by the church have prevailed over those of the family and the individual (self) subject to both family and church, and where the values of the church have in effect tended towards anti-intellectualism and the discouragement of higher education.

From early stages Catholics were very dependent upon their church which was a highly structured, dogmatic, and protective institution. Catholic bishops had originally intended that all Catholics receive their entire education in church schools, and until the last several years almost all Catholics did attend parochial elementary schools and the great majority of them attended Catholic high schools as well. Particularly in the parochial schools the majority of teachers did not have a baccalaureate or teacher's credential. Although this was enough to contribute to inferior educational output, Catholic education in addition, consistently held up for ridicule or suspicion non-Catholic "secular" thinkers and educational systems in the interest of "protecting the faith." For their further protection Catholics were also strongly encouraged to confine marriage and close friendships to their co-religionists. This situation provides substantial reason for the findings of an extensive body of research that has shown Catholics not only to be under-educated but also to be unduly authoritarian,

close-minded, clannish, and unconcerned about intellectual, scholarly attainment.

There is now evidence that in the last few years Catholics are as likely as Caucasian Protestants to attend college and aspire to post graduate education (Creager et al., 1969; Tillery, 1969) Greeley (1969, 1963) also concludes that Catholics show the same intellectual interests and attainments as non-Catholics on the basis of a survey and post graduate follow-ups of a sample of graduates originally studied as seniors in selective colleges. An abundance of evidence based on validated instruments matched against observed behavior refutes this position, however (Tillery, 1969b; Trent, 1967).

Regardless, great structural and attitudinal changes, encouraged by an immense wave of self-criticism much of which culminated in the Second Vatican Council, have been taking place in the church and its educational system. No doubt these changes have affected the goals and attitudes of many Catholics so that they are now seeking education to the extent of their Protestant peers, and are well on their way to assimilating their peers' attitudes and values as well. Still, the fact is that this is a very recent phenomenon, likely retarded because of the influence of religious press. The point is that the belief system that is imposed on the individual, whether religious or otherwise, can have definite bearing on the decision he makes about his education, and therefore warrants consideration.

Minority status. Belief systems and corresponding attitudes and values are also manifest as unique to certain minority groups. The result is that factors associated with low socioeconomic status are

expanded and heightened among minority groups that are so over-represented at the lower levels of socioeconomic status. Part of the phenomenon may result from cultural differences; part of it from lack of early development of basic communication skills and reading ability specifically, perpetrated by poorly educated, bilingual families.

Bilingualism, of course, is not the only handicap of children from families where the middle class English employed in schools is not spoken. It is a significant one, however. Bilingualism, low socioeconomic status, and low achievement seem to occur together, probably in a cumulative fashion (College of Education, Arizona State University, 1960).

School-related learning environments are lacking in these families. Inevitably, then, children from these families begin their formal education with lower academic aptitude test scores compared with other children. And apparently the situation, rather than being remedied is reinforced; even on so-called "culture-fair" tests these scores drop with age, especially in verbal ability, numerical facility, verbal reasoning and space conceptualization (Lesser, et al., 1963). This may be occasioned partly by the fact that a test may decrease in predictive power as it approaches "culture fairness" in as much as schools require for their successful students certain class-linked values as well as conventional academic aptitude as such (Noll, 1960).

Serious questions, therefore, exist about traditional admissions criteria in higher education when applied to minority youths (Clark & Plotkin, 1963; Dyer, 1968; Green, 1969). On the other hand, motivational and attitudinal characteristics deserve much more attention

because of their relevance to educational expectations and achievements. These are several cases in point:

(1) Although the nature of the scale is not sufficiently explained, Fricke (1965) derived an Achiever Personality scale from his Opinion, Attitude and Interest Survey (OAIS) which he concluded predicts college grades about as well as academic aptitude tests without correlating with these tests, meaning that they indicate academic motivation and conscientiousness. These elements are related to academic "success" but are not measured by aptitude tests. Miller and O'Connor's (1969) research indicates that among black students these elements may be more related to academic success than measured academic aptitude. They found that the Achiever Personality scale was a better predictor of college grade point average than SAT scores or high school rank for Opportunity Award students at the University of Michigan, 85% of whom were Negro.

(2) Epps (1969) found that among northern and southern Negro students socioeconomic status was strongly related to educational expectations and that self-concept of ability was strongly related both to grades and amount of expected education. Socioeconomic status and self-concept were correlated but also, without the benefit of further analysis, indicated independent contributions to expected education. Caplin (1968) also found high self-concept and level aspiration related to achievement among black students.

(3) Katz's (1969) review of research led him to conclude

that black and Caucasian students do not differ in derived educational goals but rather in expectation of attaining these goals. Parental influence and level of education are of influence here, especially since the middle class includes reward for verbal behavior which is not characteristically present in Negro families. This does not constitute a question of "personality deficit" as Katz sees it. Rather, positive influence on decisions and achievement comes from "internality" or the student's control over his own rewards. Anxiety over school constitutes a strong negative influence that presumably leads to relinquishing of control. Personal control is also paramount in the research of Gurin and her associates (1969). They distinguish between internal and external control based upon Rotter's (1966) conceptualization. At the risk of oversimplification, internal control represents the individual's belief that his behavior governs his rewards; external control represents the belief that outside forces control rewards independent of the individual's behavior. These researchers concluded that internal control for the black student implies self-blame. They found that belief in one's personal control was positively related to aspiration and performance; externally rather than internally oriented black youths tended more toward "individual" and nontraditional aspiration and attempted to deal with the system's barriers to Negro achievement.

Research consistently indicates that family values are related to educational aspirations and subsequent decisions to lead to the

realization of those aspirations. Katz (1969) questions whether this is dependent upon the presence of the father, but much of the research cited above, that of Bond (1967), Roberts and Nichols (1966) on high aspiring, high achieving Negroes, and much research to be discussed below, indicate that intact families and positive father models have a great bearing in this context. If this is true, Popenoe's (1969) report that only 44% of the children of central city families with incomes "below the poverty level" live with both of their parents suggests that the decisions that many minority students make about their education will be circumscribed for some time to come.

In the meantime the internality, self-concept, and sense of personal control that is emerging as critical to aspirations of minority students must be reviewed in relation to the prevalent value of minority families, and the maintenance of these values. This is true since the evidence is that the values of the minority parents may inhibit the development of positive self image and sense of control in some respects. Strodtbeck's (1958) research of over a decade ago remains pertinent to this point.

Strodtbeck was interested in the differences in achievement patterns between children of Italian and Jewish immigrants in New York City, and thus carefully monitored and analyzed the form of interactions among the members of these families, and the values and behavior elicited by the interactions that would help explain their differences in achievement needs and attainments. The result, noted elsewhere (Trent, 1967) bears repetition here:

> Strodtbeck identified in Italian Catholic families a pattern of emphasizing dependency among their children, of failing to recognize individual merits among their children, and of being fatalistic about their ability to achieve. In addition, the Italians were found to be more autocratic in their relationships than were Jews.
>
> Similarly, Whiteman (1962) found that Catholics and Baptists were more dogmatic, authoritarian, and stereotyped in their beliefs and interactions than Jews, and were less likely to interact flexibly and democratically with their children. The Catholic and Protestant parents were both found to be more overprotective and constrictive toward children than were the Jewish parents and more inclined to foster dependency.
>
> Although Strodtbeck studied only Italian families, Whiteman's study was not limited to any particular national group. That such findings are typical of more than one national group within Catholicism is indicated also in Donovan's (1964) study. In his extensive 1958 survey of Catholic college faculty members, Donovan found that most of them came from Irish families that maintained strict, unpermissive, authoritarian, dependent, and mother-centered family patterns. The consistent discovery of an autocratic-dependency pattern among Catholic families is particularly relevant, since it can be seen to inhibit the development of intellectualism, which requires free, open, and independent thought (pp. 13-14).

It can also be seen as contributive to a restricted self-concept and sense of personal control liable to limit educational aspirations and achievements generally when operating to extremes; and this is precisely what may be accounting for more recent findings obtained from Mexican-Americans.

Mexican-American and Anglo tenth-graders in economically depressed areas of Texas indicated they had similarly high educational goals, but the Anglo youths clearly had higher educational expectations than the Mexican-Americans (Juarez & Kuylesky, 1968). Reasons for this situation, compatible with the above discussion on minority students, are suggested by the research of Schwartz (1969) and Gordon and Schwartz (1969) which compared Anglo and Mexican-American ninth-and twelth-graders from 13 schools in the Los Angeles area. A majority of both groups aspired to

formal education after high school, but nearly twice the proportion of Anglo students compared with Mexican-Americans desired to continue their education. Moreover, among those students who desired post high school education the Anglos tended toward four-year institutions and subsequent graduate work whereas the Mexican-Americans tended toward trade school and two-year institutions.

Although the Anglo and Mexican-American students in the Gordon-Schwartz research were from the same neighborhoods, the academic achievement level of the Anglos was average, while that of the Mexican-Americans was low. Desired occupational levels of the two groups were similar when controlling for level of achievement; differences in educational aspiration, however, were reduced but not eliminated.

No doubt the language problems and other handicaps mentioned regarding minority students enter into this finding. But it is just as likely that patterns of family values discussed above are also relevant. In examining the values of the students and their parents, Gordon and Schwartz found that the dominant cultural values of the Mexican-Americans precluded some orientations which are highly related to achievement in middle class American society, including willingness to exercise control over others, independence from parental control, an optimistic orientation toward the future, a generalized confidence in mankind, and a nonrational orientation toward activity. According to Schwartz:

> One can conclude from this analysis that as opportunities are presented to Mexican-American youth for some acculturation of Anglo values, so are opportunities presented for greater educational achievement. While the deliberate modification of value orientation through indoctrination is and should be beyond the ken of any public educational system, such modification which occurs through normal social processes is not.

> With the firm conviction that some form of cultural adaption to the larger society by Mexican-American youngsters is necessary if the already apparent grim consequences of educational failure are to be avoided, this study recommends that educational systems make a formal effort to structure the social context of education so that achievement values which may not be derived from the home can be developed at school, through informal social processes. Through deliberate encouragement and through manipulation of attendance boundaries, school officials must be permitted and, indeed, required to develop school environments which are most positive for academic achievement and for values which support it (pp. 53-54).[3]

This conclusion raises questions about the influence of the general environment on educational decision-making, and the impact of schools as an important part of that environment. It also raises questions about whether the schools should deal with minority students in the terms of their values and environment, rather than exclusively in the values and modes of the middle-class environment presented by the school.

THE GENERAL ENVIRONMENT: COMMUNITY AND SCHOOLS

There are factors other than the family the individual is born in and the friends he chooses which influence or condition how he views his life and the related decisions he makes about his life. He is also influenced by the experiences, opportunities, and constraints that are provided by the communities in which he lives and the schools he attends in these communities. Available research indicates that a full understanding of the process of college-going should include the environmental factors of community and school.

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[3] The interested reader is referred to a critique of the research of Gordon, Schwartz and their associates by Hernandez (1970) which was not available to the author at the time of the production of this monograph.

Community differences in college attendance. The Trent-Medsker (1968) cross-country sample of high-school seniors referred to above was drawn from 17 communities. College entrance the semester following high school graduation varied by community from approximately 25 to 65%. The many community elements that may have contributed to this wide range of proportions of students who decided upon college are not clear. One element, however, is evident. The presence of a public college and the kind of college was associated with college attendance. The highest rate of college entrance occurred among students who graduated from high school in communities with a junior college (53%); the lowest rate in communities with an extension center (34%) or no college at all (33%). Forty-seven % of the students from communities with a state college entered college right after high school graduation (Medsker & Trent, 1965). In addition, more students from every ability and socioeconomic level entered college in communities with a junior college than in communities with any other type of college.

In a study conducted in Minnesota, Berdie and Hood (1965) also found that the location of students made a difference in college attendance, and this was particularly true in reference to the location of colleges. Fenske's (1966) study of graduating seniors from 10 Wisconsin communities indicated that students of a high level of both academic aptitude and socioeconomic status generally entered college regardless of the community. Although he concluded that local availability of a college was relatively uninfluential upon the decision to attend college, he also concluded that:

> Local availability of a college was crucial to plans for college attendance, however, for many graduates (especially girls) with combinations of characteristics positively associated with plans for college and those negatively associated with such plans, e.g., graduates of high scholastic ability but whose parents had only a grade school education (p. 3).

The yields of college-going graduates were much more associated with community differences determined by such characteristics as the educational level of parents and the proportions of fathers in various levels of occupations. This would appear to be nothing other than the potent variable of socioeconomic status, and just as a family can be characterized on this variable, so can a community, the composition of many families. Harp and Morton (1966) have furnished additional evidence of this sort. Controlling for sex and educational aspirations, in their analysis they found a significant difference in college attendance rates for two township environments characterized as high and low in professional occupations.

This does not necessarily imply merely a repetition of the finding that children from families of high socioeconomic status usually decide upon college. It may well be that communities characterized by a relatively high level of socioeconomic status set values and standards that influence even students in the communities who are not themselves at a high level of socioeconomic status. Data on minority students in integrated classrooms to be discussed below indicate that this if a strong possibility.

The socioeconomic composition and availability of a college in the community together apparently form a strong environmental press on college attendance. Some of this, no doubt, also has to do with the location of a community, at least in respect to the great difference in rate of college

attendance of high school graduates between rural and urban communities. A few exceptions are to be found, partly due to the inconsistent nature of the research (Kurlesky & Jacob, 1968; Slocum, 1968). The general consensus of much of the literature is, however, that in comparison to urban youth rural youth have a high rate of withdrawal from high school and a low rate of college attendance. This condition has been found to exist regardless of academic aptitude, financial resources, or socio-economic status generally (Berdie & Hood, 1965; Christiansen, 1962; Coster, 1963; Lindstrom, 1967; Sewell, 1963).

More specifically, in comparison with their urban peers, rural youth have been found to be more unrealistic in their plans and disadvantaged in their achievement, exposure to achievement-oriented values, educational aspirations, personal goals, academic motivation, and preparation for college. This has also been found to be true regardless of curricular emphasis upon college preparation or grades earned (Elder, 1963, Lindstrom, 1968; Sanders, Osbourne, & Green, 1955).

Some compensation has been noted depending upon the values of parents and proximity to large cities (Horner, et al, 1967; Lindstrom, 1968). Generally however, rural youths have been found to receive little encouragement to attend college either from their parents or schools (Shill,1968). Further, in spite of the fact that fewer farming opportunities will be available in the future and the fact that these opportunities will require a high level of skills, inadequate counseling is indicated in rural high schools by lack of knowledge of occupational training needs of rural youths (Elder, 1963; Lindstrom, 1968). This brings up the whole question of the influence of the school on students'

decisions about their education.

The press of school. An important part of the individual's environment is the school he attends for so many hours, at least during childhood and adolescence. Just as it is known that college environments vary considerably (Astin, 1968; Pace, 1968), no doubt school environments vary, depending upon the characteristics of the student body, faculty, and the community and region in which they are located. Indications from the above discussion are that differences in school environments can affect students' educational decisions, and often negatively.

At least a minority of students (approximately 18%) across the country have reported that high school teachers represented their greatest source of help (Trent & Medsker, 1968). A smaller proportion considered their teachers as the greatest source of influence in their lives (Trent, in press). Students who decided against college in the least proportion considered teachers to be helpful or influential. Parrish and Weldy (1969) cast additional doubts on the pervasiveness of the positive influence of schools. On the basis of their limited survey, they concluded that schools offer little encouragement toward scholarship for students at large, and that this situation is complicated by the fact that the values of society outside the school are not conducive to scholarship.

The effect of schools on scholarly formation is perhaps even more mitigated when it pertains to "disadvantaged" students. Torrance (1966) concluded that disadvantaged students' lack of motivation toward the school results from many factors within the school. These include indications that disadvantaged students have relatively little opportunity to use or communicate what they learn; that required tasks are either too

difficult or too easy for them; that they have no opportunity to learn in ways that they prefer; and that they have no outlet for their own creative abilities or rewards for certain kinds of excellence.

Factors such as these lend credence to Mathis' (1968) thesis that poverty of experience (particularly with the middle class) rather than socioeconomic status is responsible for the poorer school performance of the disadvantaged. The separation of the two seems to be an artifact, however, since the former is the result of the latter. In any event, a great part of the problem appears to be that the school is not sensitive enough to the nature, needs, and differing experiences of its students, particularly of those who are disadvantaged, but others as well. Indeed, Bowles and Slocum (1968) concluded on the basis of their survey of a random sample of juniors and seniors in 12 high schools that school experiences tended to reinforce the handicap to educational achievement and subsequent occupational mobility among low socioeconomic status students inflicted with relatively low self-images. Relatively unsuccessful and uninteresting experiences aggravated the situation.

More needs to be learned about the effect of different school characteristics on the decisions of students in this context. Berdie and Hood (1965) noted differences in the characteristics of Minnesota schools, but found few effects. However, the effects of certain aspects of the school environment are clearer. Rosenthal and Jacobson's (1968) pioneer study comes immediately to mind. The subjects of the study, one-sixth of whom were Mexican-Americans, were enrolled in a school in a lower class community of a medium-size city. At the beginning of the school year the students were randomly assigned to 18 teachers who were

told which of their students could be expected to show "dramatic intellectual growth" during the coming year on the basis of a test administered the previous year. The "special" students were chosen randomly so that their extraordinary potential existed only in the minds of the teachers. Experimental-control pre- and post-test comparisons revealed significantly greater intellectual growth on the several variables considered such as verbal and reasoning IQ and reading comprehension for the "special" students. Strong support was given the hypothesis that a teacher's expectation for a student's behavior "could come to serve a self-fulfilling prophecy."

The exact cause for the self-fulfilling prophecy and the duration of the increased growth remain matters of speculation and concern, especially since the younger children in the study showed some decline in their growth when they were exposed to other teachers the following year. Factors that may well account for the change in the students include the way the teachers and students interacted, the new norms and expectations for learning behavior the teachers might have presented the special students, and the consequent revision of self-image and role conception that may have taken place. Obviously more information is needed about this kind of phenomenon, particularly if it is found replicable, for the sake of the educational benefits implied.

Considerable evidence suggests that, at the least, the close experience with new norms, values, and expectations influence educational decisions and performance. Sarri and Vinter (1967), for example, concluded on the basis of their study of several Michigan elementary and high schools that student "malperformance" was the result of the interaction of both student

and school characteristics; that middle class students are substantially more likely to be placed in a college preparatory program which, in turn, positively affects performance; that pupil careers are influenced by social class linked motivations, capabilities and skills; and that when the school prejudges the student, it may generate the very malperformance it seeks to eliminate.

Presenting the student with new norms and, by implication, new roles and expectations, may have the opposite effect. This would seem likely, anyway, if moving from lower socioeconomic to middle class school settings results in the encounter with and subsequent assimilation or internalization of new norms. Indications are that this is the case. Veroff and Peele (1969), for example, found from pre- and post-test comparisons that Negro boys who moved from predominantly black to predominantly white schools gained significantly in autonomous achievement motivation within a year.

Caplin (1968) found significant differences between students in integrated and de facto segregated schools in school-related self-concept and aspiration, although not in self-concept and aspirations having to do with personal and social qualities. During the course of two consecutive summer Upward Bound sessions Hunt and Hardt (1969) found significant, positive changes in attitudes and motivations such as feelings of self-esteem and internal control among both white and black students compared with control groups which did not participate in the program. Unlike the white students, however, the Negros declined in grades over the 18 month period of the study.

Some of these inconsistencies may have to do with the degree, duration, and form of interaction in new settings. Thus, several studies indicate

that black students change positively both in verbal achievement as well as in attitude and aspiration when they are in classes with a majority of white students but not when they are in classes with a minority of white students even though the school is technically integrated (See Katz, 1969; McPartland, 1969). The importance of interaction of students with their school to educational attitudes and decisions is also suggested by the fact that involvement with school activities has been found to be predictive of post-high school education for both minority students and high school graduates at large (See Selinger, 1968, Trent, in press).

Once again, the implication here is that the individual makes his decisions in reference to the norms and related behavior he is exposed to and particularly those with which he identifies. This is an important implication in terms of social-psychological theory and research on decision-making. Deutsch (1959), for instance, draws upon the research to indicate that the group decision method produces more change in behavior than other methods. This does not simply mean group discussion, which apparently has no more impact on decision-making than the lecture method or the public identification of individuals' decisions. Rather, to change group-rooted attitudes it is frequently necessary to change the group to which the individual belongs.

Clearly educational attitudes and consequent decisions are group-rooted--in the family, in the peer group, and in the school--which are all influenced by and part of the socioeconomic environment. If these groups inhibit educational aspirations, then it may be appropriate for the individual who could profit from higher education to participate in groups that would encourage interest in education. Thus the minority

or otherwise educationally disadvantaged student stands to achieve more in education and seek it more when interacting with members of groups where educational achievement is valued more. And this is precisely what is apparent in studies of minority students who participate in middle-class integrated classrooms.

This process is most effective where the group is accepting of the individual (See Kelley & Thibaut, 1959). The individual is more inclined to accept group goals when the goal-setting procedures involve individual participation in selecting the goals. Applied to educational terms, it is apparent that the individual is more likely to decide upon higher education when he participates with close peers who are making this decision. This would not be likely, however, for the minority student who, though he enrolls in an integrated school, ends up in segregated classrooms which provide the basic groups in the school.

Even the integrated, accepting classroom may not be sufficient to deal with the negative-minded or undecisive student with the potential for higher education. The tendency is for groups to ridicule members who deviate much from the group's norms or standards. Thus a college-minded group of adolescents would be expected to question a peer who is not planning upon college. But this criticism of the individual's decision may have little effect if he is part of a larger group (a socioeconomic environment of family and neighborhood) that does not favor education. Perhaps this is one of the reasons why Upward Bound programs and even totally integrated schools have not had more effect than they have, granting that they have had some effect. In therapeutic settings this problem has been reduced by insulating the individual from all but the

group where norms are desirable (See Riecken & Homans, 1959). However, both questions of feasibility and ethics would have to be raised about this procedure in a school setting. Perhaps the solution is to do more with the primal group, beginning with parents, that does not encourage education to integrate it with the school that does. As a matter of fact, certain counseling procedures noted below have attempted this very thing, as have other educational programs.

Counseling for college. Surveys across the country and within individual communities provide ample evidence that students do not as a rule perceive their teachers and especially their counselors as very helpful or influential regarding their educational and vocational decisions and activities (See, for example, Delavan, 1966; Trent & Medsker, 1968). This perception may be an accurate one for a large number of students. To date, many counselors lack the training and/or talent for effective counseling, and most of them, regardless of background or talent, still do not have sufficient time to provide adequate counseling for individual students. Under the circumstances the effectiveness of counseling is bound to be limited, and perceived as such by students. Unfortunately, this is particularly true of those students not inclined toward college. These are the students who also receive least help and encouragement from their parents and are, therefore, in most need of parent (particularly father) surrogates at school (See Betz, et.al., 1968; Grinder, 1967; Mallison, 1968; Trent & Medsker, 1968; Trent, in press).

At the same time, no doubt many students would receive more counseling help if they did more to seek it, and many students are probably helped and influenced by counselors much more than they realize. Moreover,

although the research on counseling effectiveness is full of contradictions there are indications that certain counseling programs, if more widespread, have the potential for equally widespread positive influence on students' educational and career decisions.

Yabroff (1964) developed a set of probability tables based on the experiences of former high school students in his school district. The tables indicate the likelihood of successful pursuit of certain post-high school vocational and educational activities given such characteristics as a specific grade point average or academic aptitude score. Three peer groups were then selected, one of which received training in using the experience tables to determine the probability of their succeeding at a certain college or in a certain profession given their known traits. The second group had no exposure to the tables, but did receive instruction in decision-making using conventional materials. The third group, the control group, received no further treatment of all. The group which received instruction in decision-making based on the experience or probability tables scored significantly higher than the other groups at each of three levels of academic aptitude in (1) knowledge about the process of decision-making; (2) awareness of available and feasible high school and college alternatives; and (3) knowledge of the probabilities involved in these alternatives in the manner noted above.

Here is a case of providing students with relevant information about themselves in reference to the vocational and educational pursuits of others like themselves, and then encouraging them to interpret the information in relation to their own decision-making in group settings. Not only is the individual thereby able to learn something about himself

that he can apply to his life-decisions, but he is able to try these decisions out on others through a group process. The whole procedure appears to be an effective, combined application of counseling and decision theory that contributes positively to the formation of educational plans and personal values.

In a more global experiment, 100 California high schools involved parents, students and counselors in planning conferences where students' test scores were interpreted and future education and career plans were considered in relation to the students' ability (McCreary, 1965). Evaluation was not so precise as it was in Yabroff's project, but apparently the conferences which were well attended have led to more realistic considerations on the part of students, a stimulation of interest in career planning, and improvement of parents' understanding and cooperation.

A comparable program included group counseling and home visits for an "experimental" group of 721 seventh graders in three Muskegon, Michigan junior high schools (Muskegon Guidance Project, 1965). When compared with a control group which did not participate in the program the experimental group students showed increased interest in educational and vocational planning and developed more awareness of the need for early economic planning. There was no evidence, however, that the families involved contributed more to that planning or to an environment more conducive to such development.

Not all attempts to promote optimum decision-making through the counseling process have met with the considerable or even qualified success manifest in the preceding projects. Krumboltz (1966) reports such an instance that involved 225 juniors in four high schools. Counseling

procedures derived from research in social learning were used to assist students in learning how to make plans and decisions more effectively. Student social models characterized by varying degrees of athletic, social, and academic success were presented to the "treatment" groups. The primary method of presentation was an audiotape through which the peer social models verbally demonstrated the behaviors the project sought to promote. Evaluation of the effect of the treatment was based on the frequency and variety of such information-seeking behavior as writing to a college for entrance information. No differences were found between the experimental group and a non-treatment control group on this basis.

Effectiveness of counseling on decision-making, of course, depends not just on conceptualization, but the duration, quality, and form of the process. Assessment of its effectiveness also depends upon the basic assumptions made about its process, and the criteria used to measure its effectiveness. Counseling for college or any aspect of personal development and attainment is a complex process not amenable to the simplistic thinking manifest in some reports and some projects. The Georgia "experiment" highlights the problem of simplistic assumptions (see Phelps, 1969). Georgia has discontinued Spring College Days for juniors since, according to those responsible, there is a small turnout because students and their parents are not serious about college planning until their senior year and because of conflicting activities in the spring. Fall College Nights will be continued for seniors, and the juniors may attend these.

Evidence in previous pages further discussed under Personal Traits

below shows that college planning for most students--particularly those who are most likely to persist in college--is the result of attitude formation and educational decisions that take place over a long period of time, beginning long before high school and certainly long before the senior year of high school. College Days or Nights, as such, will have essentially no effect on basic decisions about college attendance. For this purpose College Days would be most effective in the early elementary years, and then they would provide only a minimal part of the counseling needed. At best, college days serve as a limited information source for high school students already interested in college.

Short-term counseling has proved effective in increasing motivation among underachievers and/or those prone toward attrition (Arkava, 1969; Rose, 1965; Rose & Elton, 1966). One of the reasons for the effectiveness of some short-term counseling may be the relation of technique to the particular needs and traits of the individuals seeking counseling, such as providing unstructured group counseling experience for highly anxious underachievers and structured experiences for low anxious underachievers (Brown, 1969). But even counseling techniques customized to individual differences prove to have effects that are only temporary (Gilbreath, 1968).

The problem of counseling for optimum decision-making is more likely to be severe and prolonged when it deals with values and traits embedded in cultural and socioeconomic status. Therefore, perhaps it is normal that an eight-week summer session designed to provide realistic college experience for Upward Bound students such as that described by Herson (1968) has no discernible effects. Perhaps it is also normal that more extensive programs such as that described by Klitgaard (1969) have the

opposite result. Thirty out of 35 Mexican-Americans who were counseled in an unstructured group over a four year period entered college after high school graduation and have acted as models stimulating others to do the same. Klitgaard attributes this success to the group identity and mutual support that developed over this period, verifying further the important role of primary groups in decision-making previously discussed.

In broad view, probably the great bulk of counseling does little to influence young people's decisions regarding college. Clearly, though, proper counseling programs can, and some do, exert such an influence. What Green (1969) has to say about black students in this context may have much wilder relevancy. As he sees it serious questions arise about the application of traditional admissions criteria to minority youth. Motivational and attitudinal characteristics which have been ignored must now be considered, particularly since colleges have found that "high-risk" students can succeed with proper tutoring and counseling. Again, the emphasis might well be placed on that word "proper."

PERSONAL TRAITS

Whatever the complex, interrelated internal and external sources of influence on educational decision-making, they end up as manifest in the individual's personal traits of aptitudes, attitudes, values, and general behavior, beginning with the primary trait of intelligence or academic aptitude.

Academic aptitude. Without a doubt two of the most important determinants of college attendance are intelligence (or academic aptitude)

and socioeconomic status. This is evident from the present paper and a number of other reviews (cf. Feldman and Newcomb, 1969). But just as it is essentially impossible to consider these variables apart from each other in relation to college attendance, neither do they together or independently represent the sole determinants of college attendance. The interrelationships are probably as important as their individual influences on the decision to attend college, if not more so.

As indicated earlier, actual and derived college attendance occur with greater frequency at the higher levels of socioeconomic status and academic aptitude; so, too, does achievement motivation. A direct positive correlation exists between academic aptitude and socioeconomic status, and the two variables together are more predictive of college attendance than either one separately.[4] But the importance of one over the other variable is not clear concerning the decision to attend college. Studies include findings ranging from socioeconomic status being twice as important as ability, to ability being three times as important as socioeconomic status.

The difference between the great upsurge of plans to attend college and actual enrollment in past years is particularly noticeable among students at the upper ability levels, regardless of socioeconomic status or, in some instances, even regardless of ethnic background (Bowles & Slocum, 1967; Flanagan, et al., 1964; Havighurst & Neugarten, 1967; Tillery, 1969b). College attendance continues to vary greatly by region,

[4]See Berdie & Hood, (1965); Feldman & Newcomb, (1969); Flanagan, et al., (1964), Havighurst & Neugarten, (1967), Kahl, (1953), Medsker & Trent, (1965), Noll, (1960), Rogoff, (1963), Sewell & Shah, (1967), and Tillery, (1969b).

but at least an estimated 80% nationally of students at the top quarter of their high school class enter college. Over 90% of students at both the upper quarter of ability and socioeconomic status have been found to enter college. Still, great slippage of college attendance occurs among talented youths, and this begins in the early years of school (see Bridgman, 1960).

Motivational factors. Presumably motivational factors account for much of this slippage, although they cannot be extricated from ability and socioeconomic status any more than these two latter factors can be completely separated from each other. Havighurst and Neugarten (1967, p. 99) argue, as a matter of fact, that "The most important factor in determining who will go to college is that of motivation, the individual's desire for a college education."

This recalls the fact that the strong desire to attend college expressed by a large sample of high school seniors across the country was the single variable most related to actual attendance (Trent & Medsker, 1968). It does not, however, account for the reason for this motivation. Havighurst and Neugarten (1967) consider that motivation to attend college arises from four major factors: (1) need for achievement; (2) identification with persons who have gone to college or done well in school; (3) social pressure, especially from family, peers and school; and (4) intrinsic pleasure in learning.

Havighurst and Neugarten's four factors actually provide a good beginning operational definition of motivation. The factors gain in viability since many aspects of the factors have been demonstrated in the research reviewed to this point. Yet the term "motivation" has

various meanings in the literature. Ideally, therefore, an examination of a comprehensive conceptualization of motivation should be developed before more specific attention is given to the dynamics of academic motivation.

A sufficient description of such a conceptualization, however, would constitute yet another treatise. For the immediate purposes motivation is viewed classically as a need or desire accompanied by the intention to attain a goal that will satisfy the need; it is an internal state that controls behavior, determining the strength and specificity of action in the face of presumed alternatives (cf. English & English, 1961; Krech & Crutchfield, 1962). Expectancy is distinct from motive in that is is an anticipation that an act or behavior will lead to a particular consequence; the strength of expectancy depends on the subjective probability of anticipated consequences. Incentive is also distinct from motive in as much as it constitutes the relative attractiveness of a reward or goal, the strength of which depends on the difficulty of attainment. Motives are relatively stable and general characteristics of the personality; expectancies and incentives are variables that depend more on the ongoing experience of environmental cues (Cf. McClelland, 1955; 1961). In actual practice, the three variables are interrelated, and this is certainly true regarding motivation toward academic achievement.

The important point of this discussion is that the decision to go to college is likely to be the result of a motivational need of long standing. The expectancies of the consequences of going to college and the incentives that college represents prompt the act of entering and persisting in college. But the incentive and expectancies -- the act of college entrance itself -- are the reflections of more basic motivation; they are the

manifestation of established consistent behavior. The motivations behind the behavior are the result of selective rewards, inculcated values, and interactions from earliest childhood and, therefore, are highly stable and resistent to change.

This suggests why remedial programs designed to stimulate motivation to achieve academically generally result in such moderate or negligible success. It also suggests why students who are not sure about their college plans and who decide to enter college only late in high school or after their graduation usually end up withdrawing from college (see Trent & Medsker, 1968). Although the research does not clearly designate motive from incentive or expectation, it does do much to substantiate Havighurst and Neugarten's conclusion that it is basic motivation, above all, that determines the decision to go to college. It also gives some indication of how this motivation is formed and manifest.

Motivational determinants. Motivational elements underlying the decision to achieve academically and enter college frequently appear in conjunction with other variables. They may also be the result of the early socioeconomic and especially familial environment. Yet apparently motivation provides the catalytic force behind the decision to attend college. Motivation is manifest in the form of a variety of attitudes and perceptions, a number of which were evident in research cited previously. Some of these same motivational variables together with some additional variables have also been observed in the comprehensive studies of Coleman (1966) and Tillery and associates (Tillery, 1969a, 1969b, 1969c; Tillery, Donovan & Sherman, 1969; Tillery, Sherman & Donovan, 1968).

The main objective of Coleman's nationwide, landmark study was to assess the quality of educational opportunity in the United States. A secondary but very relevant objective was to assess the motivational-personality factors of students related to school achievement. Findings pertinent in this context are summarized here:

(1) Negroes and other minority groups showed a much lower sense of control of their environment than white students. White students showed internal control responses two to three times higher on items such as "Good luck is more important than hard work for success."

(2) Students' attitudes accounted for the largest proportion of the variance in school achievement, followed by socioeconomic status.

(3) The educational background and aspirations of fellow students appeared to be beneficial to achievement, independent of a given student's own background. The achievement level of fellow students also had affected the achievement of a given student.

(4) Positive self-concept, positive attitude toward school, interest in school and internal locus of control were predictive of academic achievement, with attitudes and background accounting for approximately 16 and 28% of the total variance for black and white students respectively.

(5) Self-concept and achievement were most highly related for students of high socioeconomic status; locus of control and achievement were most closely related for "disadvantaged" students.

(6) Parents' desire for their children's further education constituted the greatest unique contribution to positive self-concept and internal locus of control.

The implications of the findings are that family background is very important to the motivation to achieve, and this influence does not diminish over time; the social context, particularly the peer group, is also important; school characteristics account for very little of the variance in school achievement; attitudes, however, are "extremely highly related to achievement." Out of the composite of variables examined, self-reported aspirations and motivation, sense of realism, self-esteem, and sense of control over the environment comprised student attitudes indicative of motivation and correlated behavior and values, and which accounted for more variation in achievement than any other variable in the survey.

Consistent with expectations raised in this paper, these attitudes were largely family rooted, even if measured as distinct from the family. As such they were little subject to modification in the school. In Coleman's words:

> Taking all these results together, one implication stands out above all: That school brings little

> influence to bear on a child's achievement that is independent of his background and general social context; and that this very lack of an independent effect means that the inequalities imposed on children by their home, neighborhood, and peer environment are carried along to become the inequalities with which they confront adult life at the end of school (p. 325).

The research of Tillery and his associates (Tillery, 1969a, 1969b, 1969c; Tillery, Donovan & Sherman, 1969; Tillery, Sherman & Donovan, 1968), like that of Coleman pertains to most of the areas covered in this paper, and gains in importance in as much as the main objective of the research is to delineate the process of decision-making that results in college attendance. The findings also gain in importance since they are based on random samples of ninth and eleventh graders in four states (representing different regions and higher education systems) who are being followed up on a longitudinal basis. The project is still underway at this writing, but several preliminary reports corroborate the bulk of findings previously enumerated. To summarize a few of the pertinent findings:

(1) High academic and vocational aspirations greatly distinguished among those who were college-bound and those who were not. Most of those who entered college did so right after high school. Those who entered four-year colleges manifested the highest aspirations in high school, and indicated early motivation by their early decision to enter college.

(2) Those who aspired to enter college indicated their greater motivation by such behavior as talking about college much more, by seeking advice about college from parents,

counselors, and teachers, by exhibiting greater self-confidence that they would achieve in college, by considering college an important factor in their lives, and by expressing greater interest in ideas and personal autonomy -- traits conducive to persistence in college (cf. Trent & Medsker, 1968).

(3) Further indication of the relative seriousness of motivation for the college-bound was the fact that they were considerably more likely to see college as an opportunity to get ahead, in contrast to the noncollege students who were more likely to see college as a place to have fun before settling down or as a place to behave in ways that would cause their parent's disapproval.

(4) Both academic aptitude and socioeconomic status were related to level of aspiration and actual attendance in college, but the economic factor as such was not a key element in college plans.

(5) Parents were perceived as the greatest source of help, followed by counselors, particularly among the college-bound.

(6) Counselors reportedly gave the greatest part of their attention to high aspiring, high socioeconomic, and high achieving students. Students of low aspirations tended to have a negative view of counselors and in large proportion reported being discouraged by their parents.

Once again, the convex of the data focuses on aspects of family-

rooted motivation as underlying the decision to attend college. When the disposition toward college is present, the school reinforces it, but when it is lacking, it appears to ignore it. Fine points and differentiating weights of the various factors contributing to the decision to attend college are anticipated in subsequent reports emerging from the project. To all appearances, though, a syndrome of motivational elements is pivotal to the decision, and parents are primary in initiating that syndrome. Therefore, it is relevant to consider how parents inculcate this form of achievement motivation.

Formation of Achievement Motivation. The research does not agree on all particulars, but the consensus is that motivation to attend college begins very early in life, and even the specific decision to attend a college generally is made before the junior year of high school. Grant (1968), when comparing the post high school plans of Utah high school seniors in the fall and spring, found them to be more realistic just prior to graduation. Tillery (1969b), found that approximately half of his four-state sample of high school students reported that they decided to enter college late in high school, although there was a tendency for students who entered four-year colleges and universities to decide upon college early in life. The largest proportion of students in the Trent-Medsker (1968) cross-country sample, however, who went on to enter and persist in college, reported as seniors in high school that they made their plans before their sophmore year of high school.

Interview data from students representative of this sample indicated that the college-bound had essentially taken it for granted

that they would enter college from childhood, rather than having made some major, specific decision to enter college as adolescents. The observations of Douvan and Kaye (1962) also were that upper and upper middle class students do not really make a decision about college attendance; rather, it is assumed. Their conclusion was that such students will not attend college only if they are highly motivated not to attend. Seron's (1967) review of relevant literature also reveals that the motivation or decision to enter college generally begins before high school.

Indeed, both capacity for academic achievement and motivation to achieve are observable from the earliest years of school. Kagan and Moss (1962, p. 152) concluded from their longitudinal study from "birth to maturity" that they could make "fairly accurate guesses about intensity of strivings for intellectual competence in high school and college from the child's behavior or tested intelligence in the third and fourth grades." The degree of achievement behavior of ten year olds formed good predictions of adult achievement. Three factors contributed to the "stability" of this behavior: (1) approval or acceptance of achievement by the social environment; (2) "mastery behavior" leading to status, parental, or parental surrogate acceptance, material reward, personal satisfaction, vocational satisfaction, and feelings of adequacy and competence; and (3) the educational level of the subjects' families.

Similarly, the Hoffmans (1966, p. 281) concluded from their review of the research that intellectual tendencies become fairly well consolidated by elementary school age, that measured intellect-

ual capacity is capable of change, and that these changes "may be related to the degree of independence and achievement motivation fostered by the early family environment." Berdie and Hood (1965) concluded that influence governing post-high school plans are identifiable before the ninth grade. More specifically, Shaw and McCuen (1960) identified underachieving behavior that would limit college plans among bright students as early as the first grade.

There is a time factor evident in the college decision-making and it does not pertain only to the specific decision to enter college or performance supporting that decision. It may also pertain to the time of one's birth relative to his siblings. Although the research at times is inconsistent on the subject and does not manifest impressive relationships, first-born children generally have been found to be higher in academic performance and motivation than later-born children. Bradley and Sanborn (1969) found a significant overrepresentation of first-borns among ninth grade students identified as superior; Crittenden (1968) found first-borns significantly higher on Iowa Tests of Basic Skills scores and teacher grades, especially among females and siblings close in age. At first reading these findings do not appear compatible with Berelson and Steiner's (1964) conclusion that there is a consistent increase in average intelligence from first-born to last-born within families. Perhaps the performance of first-borns examined as groups exceeds what might be expected since, as Berelson and Steiner explain, for the general population late-born children actually have a lower average measured intel-

ligence because larger families are more prevalent among groups with lower measured intelligence.

Beyond the matter of achievement and aptitude is that of attitude. Combining the results of three samples of subjects in three studies, Sampson (1962) concluded that first-borns have a higher need for achievement. The Hoffmans' (1966) review led to the conclusion that achievement motivation, striving for excellence, and the attainment of eminence are significantly higher among first-born children, especially within the "academic intellectual sphere." Once again, the socioeconomic factor enters into the field with the suggestion that parents who ascribe to intellectual values transmit them to their children, and that this may occur more when they can give undivided attention to their children.

Considerable research permits much more to be said about the transmission of values that contribute to academic motivation and the related decision to enter college.[5] To summarize, this research shows:

(1) As noted earlier, socioeconomic status interacts with family characteristics in the promulgation of achievement motivation. Children from middle class homes seem to learn to value praise by adults (their parents)

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[5] Berelson & Steiner, 1964; Brackbill & Jack, 1764; Douvan & Kaye, 1962; Hoffman & Hoffman, 1966; Kagan & Moss, 1962; McCandless, 1961; Reisman, 1962; Sechrest, 1962; Stinchcombe, 1969; and Terrell et al., 1959.

early. This value system transfers to the school setting and contributes greatly to middle class children's success there, and may still be operating when they reach college. Lower class children, on the other hand, typically experience adult approval in the home only rarely, and as a result do not respond to teacher praise which for them has little meaning or value. Recent evidence indicates that lower socioeconomic status parents desire more education for their children than in the past, but they do not sufficiently nourish the motives and skills necessary for their children to compete with their higher status peers. Working class children respond less consistently than middle class children to achievement cues, abstract standards, and verbal rewards.

(2) Serious, intellectual goals are atypical reasons for college attendance, especially among lower class students. A more common reason for college attendance is the desire for both social and vocational mobility; college can have a high incentive value for students motivated strongly toward independence and mobility. Men phrase college aspirations in terms of vocational aspirations although for women college is more an end in itself.

(3) Teachers, counselors, unrelated adults, peers, close friends, older siblings, their peers, and especially parents influence the decision to attend college. This influence often occurs by the encouragement of values and attitudes not

directly related to college but which are highly conducive to college attendance; an example is the encouragement of a pervasive achievement motivation.

(4) Parental demand and reward for achievement is a marked middle class characteristic which follows a predictable pattern. The earlier that parents press for achievement among their children, the more they press for their children's independence in achievement, and the more they reward this behavior with physical affection, the greater their children's need for achievement.

(5) A number of antecedents conducive to achievement motivation or needs are consistently evident and include style of familial interaction and the delegation of responsibility, apart from demand for achievement and encouragement of independence as such. Rapport with parents is important, especially with the mother and when the father is present as a respected head of the household. Parents are autonomous and egalitarian. They are relatively unrestrictive and avoid overprotectiveness without being excessively lenient; they allow their adolescent children some power to govern their own affairs, and guide them in the use of this power in a spirit of warm permissiveness.

(6) The middle class familial syndrome for achievement orientation includes as important elements autonomous parents who are close to their children and accepting of them while at the same time pressing them toward achievement,

independence, and self-responsibility. The authoritarian rather than autonomous syndrome has the opposite effect. Authoritarian parents, especially authoritarian, coercive fathers tend to have children who, compared with children of parents who value personal autonomy, are less motivated to achieve and to continue their education.

(7) There are a number of characteristics that distinguish authoritarian from autonomous families which may help to explain differences in achievement motivation among their children. Authoritarian parents are prone to discipline their children harshly, to give them their love conditionally, and to encourage their dependency through a hierarchical family structure. Autonomous parents tend to control their families democratically, to show consideration and consistency in rule enforcement, to share decision-making, to explain the reasons for their decisions, to train their children for self-reliance, and to accept the gradual detachment of their children from them.

(8) Data suggest that autonomous, achievement-oriented families have a direct effect on their children's decision to attend college in as much as college-bound youths compared with others are more independent, are more self-reliant, and resist authority more. This is true particularly for men, and even more particularly for lower class men, who may be making special efforts to assim-

ilate the values of their achievement oriented, middle class reference groups.

(9) The behavior of authoritarian families encourages dependency, and that of autonomous parents, self-esteem and self-confidence. The traits of self-esteem and self -confidence are related to achievement in school, positive interpersonal relations, and competency in general. Correlated leadership, extracurricular participation, socialability, and freedom from conflict with authority, as noted earlier, are also related to positive socialization and academic motivation and accomplishment. This important syndrome of traits of emotional acceptance, academic motivation, perceived competence, and social power determines the child's place in class. This syndrome is observable and consistent from the early years of school -- when its observation is important since it will also ultimately determine the child's position in society as an adult.

Additional Personality traits. As has been noted in a variety of ways, unique environmental press on youths who end up deciding upon college is bound to be manifest in their personality and behavior. This has been indicated by their greater motivation to achieve, their greater self-esteem, and greater striving for independence. It is also manifest in personality traits or self-concepts related to disposition toward learning and the larger social environment outside of family and close peer groups.

In an early study that formed the base line for Trent-Medsker (1968) cross-country longitudinal sample referred to earlier, Medsker and Trent (1965) administered five perliminary scales from the Omnibus Personality Inventory (Heist and Yonge, 1968) to their subjects while high school seniors with these results: (1) As measured by the Complexity scale, for both sexes there were small but significant differences in intellectual curiosity, openness to the novel, and tolerance for ambiguity in favor of the college-bound compared with their peers who did not enter college the fall term after high school; (2) the college-bound manifested less measured anxiety; (3) the college-bound were more autonomous, objective, open-minded, culturally sophisticated, and intellectual in their thinking as measured by the correlated Nonauthoritarianism and Social Maturity scales; (4) the college-bound manifested a greater preference for abstract, reflective thinking especially in the areas of philosophy, literature, art, and music; (5) statistically significant differences between the two groups on these highly reliable and validated scales generally prevailed when controlling for level of academic aptitude and socio-economic status, although there was some interaction among the variables (see Trent & Medsker, 1968); (6) the Thinking Introversion, Complexity, Nonauthoritarianism, and Social Maturity scales (measuring intellectual interest, tolerance for ambiguity, and open-minded, autonomous thinking) were subsequently found to be part of the select variables that formed two discriminant functions that predicted patterns of college attendance (or non-attendance) over a four-year period (see the Multivariate Process, below).

These data appear summarily in Table 2. Graphs of the data appear in Figures 1 and 2 to facilitate a comparison of the measured dispositions of the college-bound and their non-college peers for each sex. The standard scores included are based on the entire distribution of the scores of the high school seniors so that for each scale the total mean score is 50 and the standard deviation is 10.

These attitudional differences could have been anticipated from much of the previous discussion on the press of the socioeconomic environment and related determinants of academic motivation. Two studies, however, do not altogether verify results of this kind. Flanagan and Cooley (1966) obtained through their Project Talent a wide array of attitudinal and particularly cognitive variables from a large national sample of high school students. In a one-year follow-up study they conducted a series of discriminant analyses to predict various post-high school educational groups: those who attended four-year colleges, nursing schools, junior colleges, business schools, and trade schools and those who did not attend college at all a year following their high school graduation.

For both men and women tested in the eleventh grade, information scales and especially such ability scales as mathematics and reading comprehension distinguished the follow-up groups more than all other sets of variables. Interest scales included Physical Science, Public Service, Literary-Linguistic, Artistic, Sports, Business Management, and Mechanical-Technical Scales. The temperament scales were Socialability, Social Sensitivity, Impulsiveness, Vigor, Calmness,

Table 2

Standard Mean Scores on Selected Omnibus Personality Inventory Scales for College and Non-College Groups*

	Complexity		Lack of Anxiety		Nonauthoritarianism		Social Maturity		Thinking Introversion	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
College										
Number	2318	1888	2318	1888	2318	1888	2318	1888	2318	1888
Mean	50.6	52.0	51.0	51.0	51.2	52.4	51.2	52.5	52.5	53.5
Non-College										
Number	2065	2995	2043	2983	2065	2994	2065	2995	2065	2995
Mean	49.5	48.7	49.0	49.6	48.4	48.6	48.8	48.5	47.3	47.8

* Data derived from Medsker and Trent (1965).

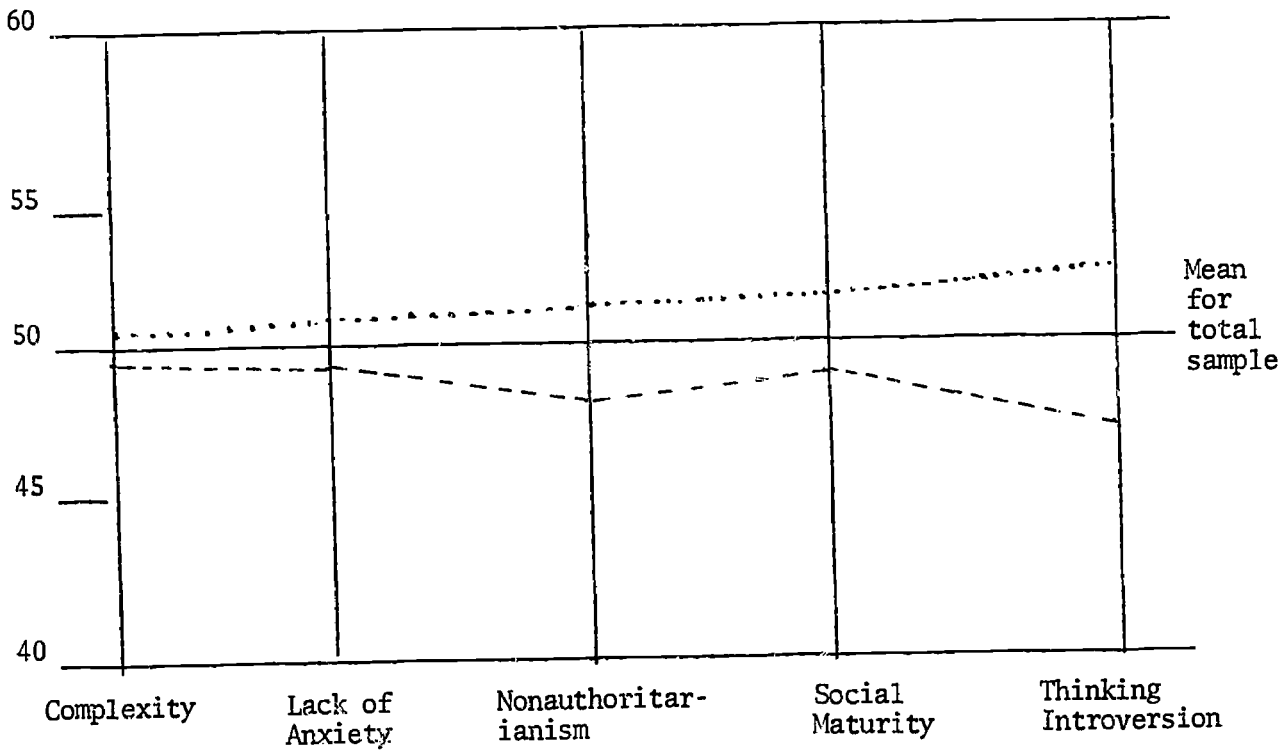

Figure 1. Profile of Men's Standard Mean Scores on Selected Omnibus Personality Inventory Scales for College and Non-College Groups (Derived from Medsker & Trent, 1965)

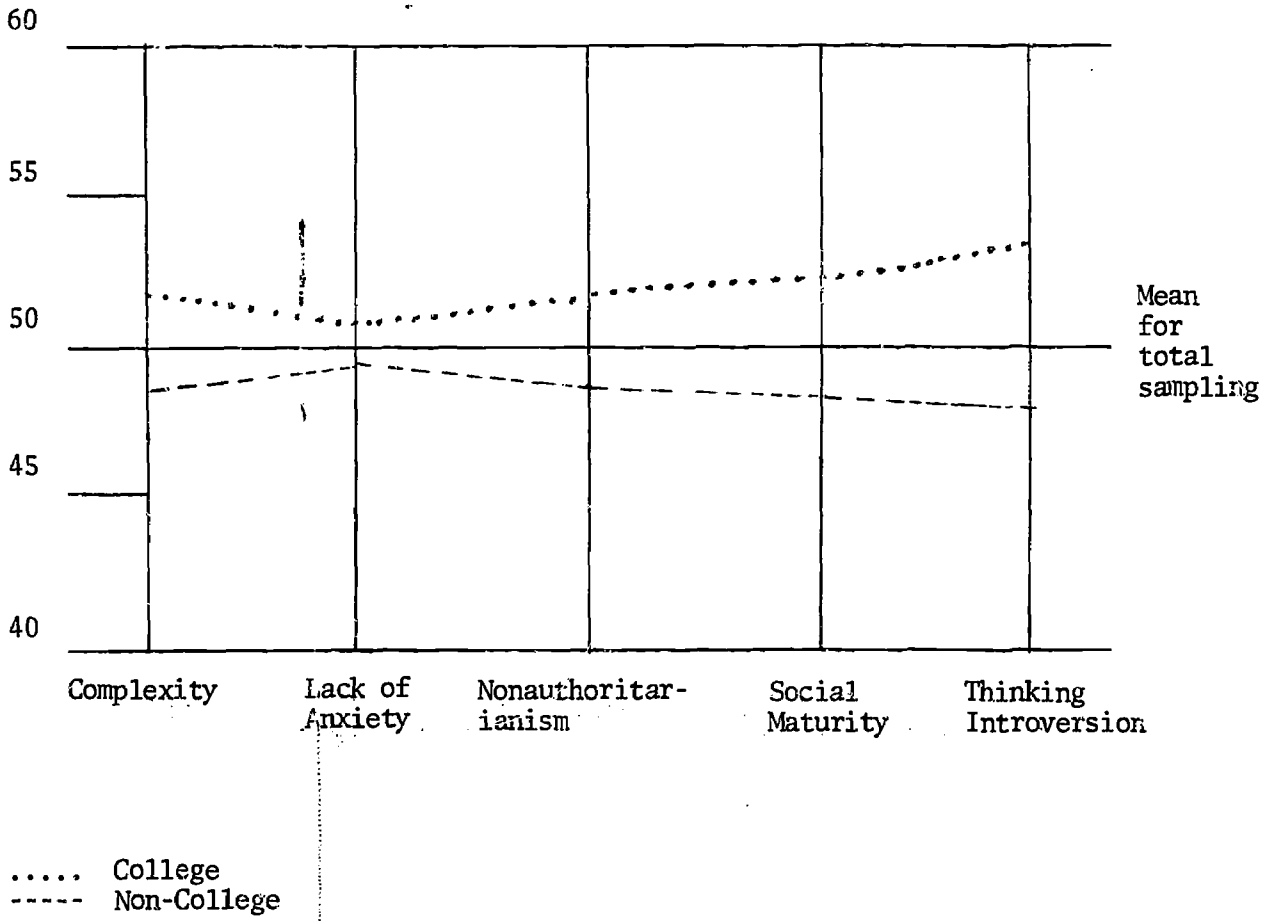

Figure 2. Profile of Women's Standard Mean Scores on Selected Omnibus Personality Inventory Scales for College and Non-College Groups (Derived from Medsker & Trent, 1965)

Tidiness, Culture, Leadership, Self-confidence, and Mature Personality. The interest scales distinguished among the post-high school criterion groups for the men, but not the temperament scales. The temperament scales of Leadership, Socialability, and especially Mature Personality did contribute to the two discriminant functions that distinguished the criterion groups for the women, but the interest scales generally received much greater weight on the two discriminant functions..

The temperament scales distinguished among groups of men attending different types of private, four-year colleges even though they did not among the post-high school criterion groups. But even in the analyses of men attending different types of private institutions other variables had greater discriminating power. Perhaps these findings are in part the results of lack of relevancy of such variables as tidiness, vigor, and calmness. Perhaps they are also the result of the very low reliability, lack of independence, and absence of validation of the scales (see Flanagan, et al, 1964).

Dole and Weiss (1968) studied a sample of University of Hawaii freshmen through a multivariate design in order to examine the relationship between 17 "independent" variables having to do with performance, plans, attitudes, and characteristics and 13 "dependent" variables having to do with reasons, values, influences, and interests related to attending college. Social Reason, Conformity, Curiosity, Academic Value, Altruistic Value, School Influence, Science Interest, and Humanities Interest were among the important determinants associated in specific rather than general ways with aspects of follow-

up status. The authors concluded that motivational factors were moderately associated with performance measures although not to the point of being able to make clinical predictions or administrative decisions about individuals.

Dole and Weiss provided a carefully developed contribution to relevant research. Nevertheless, the opinion here is that problems of interpretation remain. The authors might well have found a greater association between motivation and college entrance and performance had they studied their subjects before they actually entered a university. Moreover, there are reasons to question the assignment of some independent and dependent variables and consequent conclusions. For example, Academic Value correlated highest of all the dependent variables (.52) with the combined independent variables for the men, and this surely could be considered a motivating factor governing the decision to enter and persist in college, rather than the result of having entered. Regardless, the authors' caution that a group finding does not necessarily hold for an individual is important, and no doubt pertinent to most of the theories and research presented in these pages.

Two additional personal traits involved in decisions about college concern goal-directedness and personal adjustment. Baird (1967a) investigated a large sample of college-bound youths who were tested by the American College Testing Program (ACT) in 1964 and 1965, and found that they gave greatest importance first to vocational training (51%) and second, to the development of intellectual abilities (34%). Vocational training might be considered to have been of prime importance to 58% of the students when including the 7% who foremost de-

sired a higher income. A small percentage of students chose as their most important goal to become a cultured person, enjoy life, develop their personality, to develop a satisfying philosophy, to make a desireable marriage, or to develop moral standards.

The vocationally oriented students had about an average level of academic aptitude measured by ACT, and came from families with slightly lower incomes than most of the groups. Their nonacademic achievements were average. They were practitioner oriented in curricular and vocational choice, and were most likely to have decided upon a major. They also frequently planned on some post-graduate education. The students that emphasized higher income frequently came from low-income and rural backgrounds. They had the lowest grades in school and were low on the ACT and in nonacademic achievement. They were most likely to be undecided about their field but were practically oriented in what choices they made. Few of them planned on post-graduate education.

The third of the sample that had as a primary goal the developing of their mind had high grades in school and high academic aptitude scores. They showed leadership abilities more than others, were influenced by the quality and reputation of their schools, and chose many vocations but centered on science majors and research more frequently than any other groups. They commonly planned on some post-graduate education.

These findings add corroboration to the theories and research on student subcultures (cf. Clark & Trow, 1966; Peterson, 1968,196). Although they may appear obvious they are important to bring up in

this context to make the point that underlying the motivation to decide upon college may be quite different needs where realization is perceived to be met in quite different ways by individuals with quite different backgrounds and characteristics.

There is evidence of interaction between goals, personal behavior, and college performance. For example, Reed (1968) found for several hundred freshman women that field of interest, the establishment of high future goals, and warm interpersonal relations were conducive to persistence in college. Perceptions of the meaningfulness of daily college tasks were also positively related to overachievement. More specifically, liberal arts students low in warm interpersonal relations and low in future goals had a 55% chance of remaining in college and a 41% chance of withdrawing; professional students high in warm interpersonal relations and future goals had an 82% chance of persistence and a 10% chance of attrition.

O'Shea (1969), like Berdie and Hood (1965), also found an association of good social relationships with achievement, presumably including the act of entering college. O'Shea, however, did not observe an association of interpersonal relations with achievement among students after they entered college. Some of these relationships may simply follow from having a well adjusted or undistracted personality in general. Thus Centi (1961-1962) has demonstrated a positive relationship between adjustment (measured by the Minnesota Multiphase Personality Inventory and the College Inventory of Academic Achievement (CIAA)) and achievement in college.

As noted above, there was also a tendency for the college-bound students in the cross-country sample, originally studied by Medsker

& Trent (1965), to manifest less anxiety than their non-college peers. Berelson and Steiner (1964) explain that the setting of level of appreciation has been conceptualized along gradients where the target of achievement falls at the cross point of the "approach gradient," associated with increasing attractiveness of goals, and the "avoidance gradient," associated with increasing fear of failure. They cite Atkinson and Litwin's (1960) research as an example. The data indicate that high achievement motivation and low test anxiety result in the selection of challenging tasks which preclude guaranteed success but not some risk of failure. Low achievement motivation and high test anxiety result in a narrowing of challenging tasks, relatively safer, psychologically, in terms of difficulty. In part, risk taking and achievement have been found to be positively correlated in a school setting (see Myers, 1965).

Achievement motivation, therefore, including the motivation to attend college, may in the final analysis include the disposition to withstand certain types of anxiety. In light of the above review there may be the possibility that the individual has to experience a certain level of self-esteem and self-confidence before he can afford to take the kind of risks and consequent anxiety presumed in academic involvement. Perhaps he must be sufficiently free from anxiety about his own status before he can assume the type of anxiety that may be part of striving to achieve academically.

This notion further suggests the complexity of the personality. There are many aspects of the personality, and no doubt the interaction of these personality traits influence the specific decision

to attend college. It is now possible to identify some of these interactions, and there is also the promise of being able to deal with them constructively as observed in the following section.

THE MULTIVARIATE PROCESS OF DECISION-MAKING

Clearly the decision to enter college is the cumulative result of the influence of a large number of interacting variables over an extended period of time. Even for the college-bound -- those who have already decided to attend college -- the choice of a particular college is influenced by such complex factors as the intellectual emphasis, practicality, the advice of others, and social emphasis (see Richards & Holland, 1965). The process of deciding upon college, though much influenced by socioeconomic press, is seldom primarily a matter of financial status. Influencing elements are frequently psychological, and often irrational as well (see Dinklage, 1966; Kurland, 1967).

Multi-dimensional determinants of decision-making. Recent efforts have manifested the possibility of identifying and measuring discreet motivational and personality variables related to school achievement and, presumably, the subsequent decision to attend College (see, e.g., Austrin, 1965; Russell, 1969, Satir, 1968-1969). Considering the complex, multivariate dynamics underlying the decision to attend college, however, the current multidimensional measurements of performance and aspirations seem to be a more productive line of research. The efforts of Dole and Weiss (1968) and Flanagan and Cooley (1966) were discussed above in this context.

Trent (in press) had the advantage of drawing upon data obtained from a five-year longitudinal study of high school graduates (Trent & Medsker, 1968) to determine the combination of a wide array of cognitive and attitudinal variables most associated with the decision to enter college and various patterns of college attendance after entrance. Analyses centered on four major criterion groups: (1) high school graduates who did not enter college (nonattenders); (2) those who entered college but withdrew without completing four years of college and without obtaining a degree (withdrawals); (3) those who persisted in college for four years but did not obtain a degree in that time (continuers); and (4) those who obtained a baccalureate within four years (completers).

In examining the behavioral dynamics of these groups all variables were considered for their relevance to the theory of additive ascription proposed which comprises the following propositions:

(1) the values and attitudes held by people of college age are an important source of variation in college attendance and persistence;

(2) there are three key influences on the formation of these values and attitudes: parents, peers, and school personnel;

(3) parental values are the first, strongest, and most basic influence;

(4) these three influences act in an additive manner, which also implies the possibility of subtraction when the sources of influence are not complementary.

Although the original purpose and design of the study precluded a direct test of the theory, the hypothesis was that the variables at hand would cluster together and relate to different patterns of college attendance in ways that would indicate the viability of the theory's propositions. In the process, the intent of the study was also to delineate the functioning of these variables in ways that would be of use to those responsible for assisting youths to make appropriate educational choices.

Analyses were conducted in three phases. The first phase began with factor analyses of the broad spectrum of variables used to determine the extent to which they clustered about categories of information having to do with family background, personality, attitudes about education, peer influences, school and college experience, academic aptitude, and socioeconomic status. The subjects were then scored on these factors and a discriminant analysis was made of the factor scores in an attempt to "predict" the criterion groups; that is, in order to classify accurately the primary patterns of college attendance on the basis of the factor scores. Phase two consisted of a replication of the factor analyses on an independent sample in order to assess the stability of the factor structure obtained originally. Phase three comprised a second discriminant analysis -- this time of the raw data obtained from the subjects while they were still in high school. This was done out of the interest of improving upon the original analysis for purposes of developing a model applicable to high school students predictive of post-high school educational achievement.

In phase one of the research 15 factors accounted for some 60% of the total variance. The six primary factors follow in the order that they contributed to the variance, and include the key variables (and the direction of their weight) that formed the factors:

(1) Intellectual - Educational Orientation

Thinking Introversion* (preference for abstract thinking)

Estheticism* (interest in esthetic matters)

Attitude Toward Modern Art, Music and Literature

Complexity* (interest in novel ideas; tolerance for ambiguity)

Autonomy* (objective, flexible, open minded thinking)

Identification of famous people

Stress upon the importance of a College education

(2) Religion and Social Independence

Religious Liberalism* (tendency to reject Judeo-Christian orthodoxy)

Attendance at religious services (infrequent)

Change in value for religion since high school (less value)

Autonomy*

Impulse Expression* (tendency toward uninhibited, imaginative thinking)

(3) Family Atmosphere

"Warmth" in parents' home

Closeness to mother and father

Parents perceived as loving

Parents perceived are reacting positively to their children's

achievements

(4) Parental Drive

Parents perceived as:

ambitious

orderly

energetic

intellectual

(5) Source of Help

Failure to receive educational vocational help in high school

Greatest source of help parents, followed by peers, and teachers

These factors were replicated when factor analyses were conducted on the college-bound sample exclusively, but in the second set of analyses two additional factors placed among the first five: (1) Students Use of Extracurricular Opportunities, including student personnel services and extracurricular activities; and (2) Parental Attitudes Toward College, including the importance mothers and fathers placed both on college attendance and graduation from college.

A third factor analysis included variables obtained from the subjects prior to their high school graduation exclusively. The factorial structure remained similar in many ways, but four new

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*Variables marked by an asterisk were validated scales from the Omnibus Personality Inventory (Heist & Yonge, 1968). All other variables were based on scores derived from items included in questionnaires administered to the sample.

factors merged as primary, along with the personality variables noted in the other two factor analyses:

(1) College Orientation

Timing of College plans

Importance of College

Extent of discussion of college with teachers and counselors

Extent of discussion of college with parents

Friends planning on college

Teachers' encouragement of college

Active participation in high school extracurricular activities

Self-evaluation of college ability

Certainty of college plans

Number of "solids" taken in high school

Amount liked high school

(2) Intellectual Orientation

Autonomy (measured by Nonauthoritarianism and Social Maturity)

Complexity

Thinking Introversion

(3) Socioeconomic status

Fathers's education

Fathers's occupation

Mother's education

(4) Vocational choice

Choice of occupations are made

Timing of occupational choice

(5) Parental Concern for plans

Father's and mother's concern about vocational choice

The many variables found consistently related to educational achievement and aspiration in the research reviewed in the preceding pages were not only reflected in the factor analyses enumerated above, but the interrelationships of the variables were also noted. Yet, since these data did not show the relative impact of the variables on college attendance, discriminant analyses were made of the factor scores. Scores on ten factors obtained before high school graduation correctly predicted 60% of the subjects' subsequent criterion groups. These factors and the percentage of correct classifications they provided were:

(1)	College Orientation	52
(2)	Socioeconomic Status	53
(3)	Musical and Extracurricular Interests*	56
(4)	Source of Greatest Help (Parents Most)	58
(5)	Tolerance of Ambiguity and Freedom from Anxiety (Complexity and Lack of Anxiety scales)*	58
(6)	Parents Cultural Interests (Extent mother and father engaged in serious reading)*	59
(7)	Parental Concern for Plans	59

* These factors were not among the first five factors contributing to the variance in the previous analyses.

(8)	Number of nonacademic courses taken in High School	60
(9)	Intellectual Orientation	60
(10)	Vocational Choice	60

The discriminant analysis of the factor scores indicated the relevance to college attendance of measured motivation, socio-economic status, involvement in school and cultural activities, personality characteristics, parental interaction, and preciseness of plans. But as predictive variables, the factor scores left too much margin for error. Therefore, discriminant analyses were made of 30 presumed predictive variables determined on the basis of the factor analyses and theory of additive ascription, but without regard to the factor scores themselves. Two discriminant functions resulted; the first accounted for approximately 60% of the variance among the 4 attendance patterns criterion groups and the second for about 30% of the variance. Variables with weights of .15 or more are listed by function in Table 3. The corresponding distribution of the individual scores in discriminant space are shown in Figure 3 by criterion groups.

The discriminant functions do not really greatly distinguish the completers from the continuers, but all other groups are quite distinct. There is almost no overlap between the nonattenders and the completers. The withdrawals place roughly midway between the nonattenders and completers, and at the same time occupy considerable space not shared by any of the other groups.

Table 3

Contribution of Variables to Discriminant Functions One and Two*

Variable	Weight
First function (60%)	
Importance of college to the student	.51
Certainty of college plans	.36
Social Maturity	.25
Three best friends planning on college	.25
Degree of extracurricular activity	.22
Number of "solids" taken	.18
Socioeconomic status	.16
Second function (30%)	
Degree of extracurricular activity	.57
Importance of college	-.55
Complexity	-.34
Preference for a difficult college	.33
Extent of mother's serious reading	-.32
Extent discussed college plans with faculty	-.32
Thinking Introversion	.30
Number of friends planning on college	-.27
Importance of getting ahead in life	-.24
Encouraged to enter college by faculty	-.19
Nonauthoritarianism	-.19

*Source: Trent (in press)

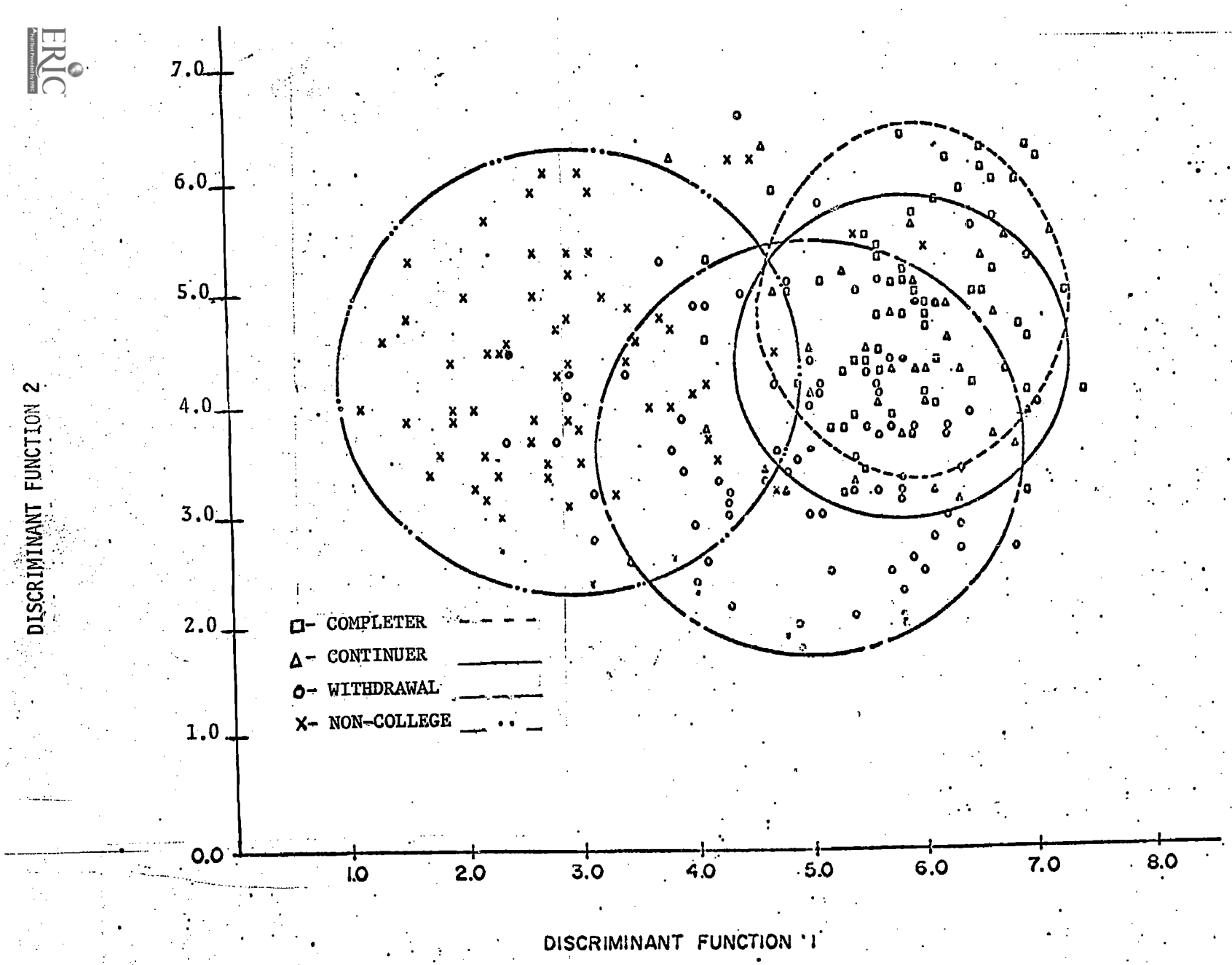


Figure 3. Distribution of scores of criterion groups in two dimensional space defined by discriminant functions 1 and 2 (Source: Trent, in press).

Technical details of the analyses are available in the origiral document. Important points to raise here are that the first function provides most of the discrimination among the groups. Thus, eventual college persisters can be predicted in contrast to nonattenders according to the following variables, listed in the order that they contribute to the first function: (1) the stress high school students place on the importance of attending college; (2) the certainty of their plans; (3) their degree of autonomy (in this case measured by the Social Maturity scale); (4) the extent to which their best friends plan upon college; (5) their participation in extracurricular activities; (6) the number of academic subjects they take in high school; and (7) their socioeconomic status determined by father's occupation.

Here, then, are the major symptoms: manifest motivation and need for achievement, autonomy (consistently found to be related to academic achievement), the suggested influence of peers, involvement in academic and nonacademic school activities, and the ever-pervasive variable of socioeconomic status.

A quite different type of person is characterized by high scores on the second function. Here is an individual unduly involved in extracurricular activities (perhaps to the detriment to studies) who does not consider college very important, who nevertheless tends to choose a difficult college (perhaps unrealistically), who does not come from a cultured family as determined by mother's reading, who does not tend to discuss college with high school personnel, who does not tend to have many friends going to college, and who tends to be authoritarian rather than autonomous, while yet expressing interest

in abstract ideas.

The exact meaning of extracurricular participation in the second function and the meaning of the positive contribution of Thinking Introversion to that function warrants further investigation. So too does the relative influence of parental encouragement in this context since this variable had to be omitted because more than 15% of the noncollege sample failed to respond to this item. Otherwise, the variables represent anticipated predictions of the avoidance of college just as the variables in the first function represent anticipated predictions of the positive decision to attend college.

A special feature of these data is that the relative weights of the variables as predictors are known. Refinement of analyses of this kind, combined with comparable data that should be available from research such as that of Dole and Weiss (1968), Flanagan and Cooley (1966), and Tillery (1969b) should provide the basis for student characteristics models useful, if not essential in dealing effectively with college decision-making, especially in the counseling situation.

Models for decision-making. During the five years prior to 1970 strides were taken to develop models of decision-making and related research that have direct bearing on the process of deciding to attend college (see Dinklage, 1966; Ehling, 1966; Gribbons & Lohnes, 1966; Yoesting & Associates, 1968). For purposes of discussion however, the work of Gelatt, Clarke and Seron will be referred to here, (Clarke, Gelatt & Levine, 1965; Gelatt, 1966; Gelatt, 1962; Gelatt & Clarke, 1966; and Seron, 1967). Their materials provide an integrated

theoretical framework for the decision-making function, including its applicability to research leading to the testing of the theory and program implementation. Gelatt and his associates drew upon much of the research and theory cited in the preceding pages of this paper as well as that of Edwards (1961) to arrive at the following conclusions:

(1) Decision-making, including educational-vocational decision-making is a long-term sequential process. It is affected by the individual's progressive experiences in terms of: (a) what he does and how well he does it; (b) the condition under which he does it; and (c) how he feels about his experiences. Decision strategies generally require information concerning: (a) alternative actions; (b) the possible outcomes of these actions; (c) the relationships between actions and outcomes; and (d) the relative preferences for the possible outcomes.

(2) Although relevant information cannot guarantee good educational-vocational decision-making, it is prerequisite to it. This calls for a continual search for relevant information and assistance to students in organizing and making use of the information. For "good" decision-making the individual needs adequate information and an effective strategy for organizing and synthesizing the information to arrive at a choice of action. The relationship between each action and its possible outcomes can be categorized according to whether the outcomes are known with certainty, involve risk, or are entirely uncertain. The more realistically a student can estimate the probability of certain actions leading

to certain outcomes the better he will be able to decide upon courses of action leading to desired outcomes.

(3) In estimating how likely it is that he will take a certain action the student ideally will base his estimate on as objective data as possible. He interprets the data subjectively, however, and therefore the element of subjective probability enters into his estimate. Contributing to the choice of an action is the value ascribed to it and the probability of its attainment. Although there are indications that the individual's assessment of the probabilities of outcomes affect his choice in certain situations, the expected value notion does not consistently yield precise prediction of choices.

(4) Ego involvement relates to the value notion. Apparently analysis of educational-vocational decision-making must take into account the student's affective and creative reactions to success and failure.

(5) Much of the research and theory cited previously is relevant in this context. For example, reactions to success are self-perpetuating: experience of success leads to further success with additional effort; the continued experience of failure leads to reduction of effort and still more failure in the face of unrealistically high aspirations.

(6) Aspirations governing decisions can be modified in group

situations: the individual moves his aspirations to correspond with what he perceives as the average performance and level of aspiration of the group. This can have positive or negative consequences depending upon the potential of the individual and group numbers. Within or without the group the "maximizing of hypothesis" is relevant which predicts the individual's choice on the basis of his level of aspiration and his assessment of the probabilities linking each alternative action with its possible outcomes. This "probability judgment" is based on research indicating that the individual's level of aspiration tends to: (a) move up after successful goal attainment and down after failure; (b) be set near the boundaries of his ability; (c) stay out of excessively difficult or easy areas; (d) be highly dependent on recent or similar experiences; and (e) be affected by knowledge of the average performance of relevant reference groups when first-hand experience is lacking.

(7) A crucial point in the development of this argument is that educational-vocational decision-making is intermeshed with ego-involving, achievement oriented situations. Thus, the function of probability estimates in the decision-making appears to be to provide links between actions and outcomes and also to affect the choice of outcome.

(8) Implications are that: (a) subjective probability estimates are an essential, integral part of the decision process, necessitating as much objective information as

possible as a base for the estimates; (b) the estimates may affect the value a student places on an educational or vocational outcome; and (c) under the circumstances there has yet to be achieved a model which will accurately predict educational-vocational choices.

(9) In the meantime the decision-making framework may indicate a process-of-choosing helpful to the student. Rather than dictating his choice or leaving him prey to misconception or subjective bias in selecting alternatives, the process can help the student to understand what is misleading or irrelevant, to collect new data suggesting other alternatives, and to determine the usefulness of outcomes empirically.

(10) The process will be enhanced through appropriate research. There is the need for evaluation research to assess weaknesses and improvement needs in current guidance programs designed to assist in educational-vocational decision-making. Pertinent questions in this respect are: (a) Do students have access to the necessary information for appropriate information in useable form? (b) Do they understand it? and (c) Do they make use of it in their decisions? There is also the need for evaluative research to assess the effectiveness of programs designed for improvement. Finally there is the need for informational research to provide knowledge relevant to educational-vocational decisions.

The intent of the College Patterns Study (Trent, in press) discussed at the beginning of the present section of this paper was, of course, to provide a student characteristics model to contribute the kind of information research just mentioned as needed for a decision-making model or the decision-making process important to college attendance. Although steps have been taken, more needs to be done to synthesize and refine these and related materials. Much more also needs to be done to implement the two forms of evaluative research suggested. But here, too, a start has been made, as exemplified in Seron's (1967) research.

Seron used Gelatt's and his associates' conceptualization about the decision-making process, just discussed, and Super's (1957) concept of vocational maturity for his conceptualization of college choice as a process that takes place over a period of time. The process involves for the student a change from little awareness about college to the choice of a specific college and acutual attendance there. The choice may also be based, at least in part, on the information he has about the college, his attitude towards college and the extent to which he is involved in the decision-process. There are four elements of the choice process: (1) amount of information about the college possessed by the student; (2) his need for college planning; (3) his concern about college planning; and (4) his involvement in college planning. The process occurs through five overlapping, developmental stages: (1) unawareness of college as a possible future concern; (2) indifference toward college choice even when aware a choice must be eventually made about college; (3) questioning about

college; (4) action in choosing a college; and (5) resolution of a college choice. Seron (p.44) expresses the process according to the following College Choice Continuum:

Movement in the College Choice Process	Indifference Unawareness	Action Questioning	Resolution

College Information Possessed by the Student	Little	A Great Deal

Seron and Bowersox (1963) devised a two part questionnaire to conform to this model: the first part emphasized the information about college considered important for high school students to possess; the second part assessed students' needs to consider college and this concerns and involvement with college planning. The questionnaire was then administered to the entire population of three different high schools in 1967: a rural, urban, and suburban high school.

Two null hypotheses governed the analyses: (1) that there would be no differences among the schools on the four variables of information, need, concern, and involvement in reference to college plans, sex, and the student's class level; and (2) that there would be no differences within the schools on the four variables, again in reference to college plans, sex, and class level. The findings resulted in the rejection of both null hypotheses.

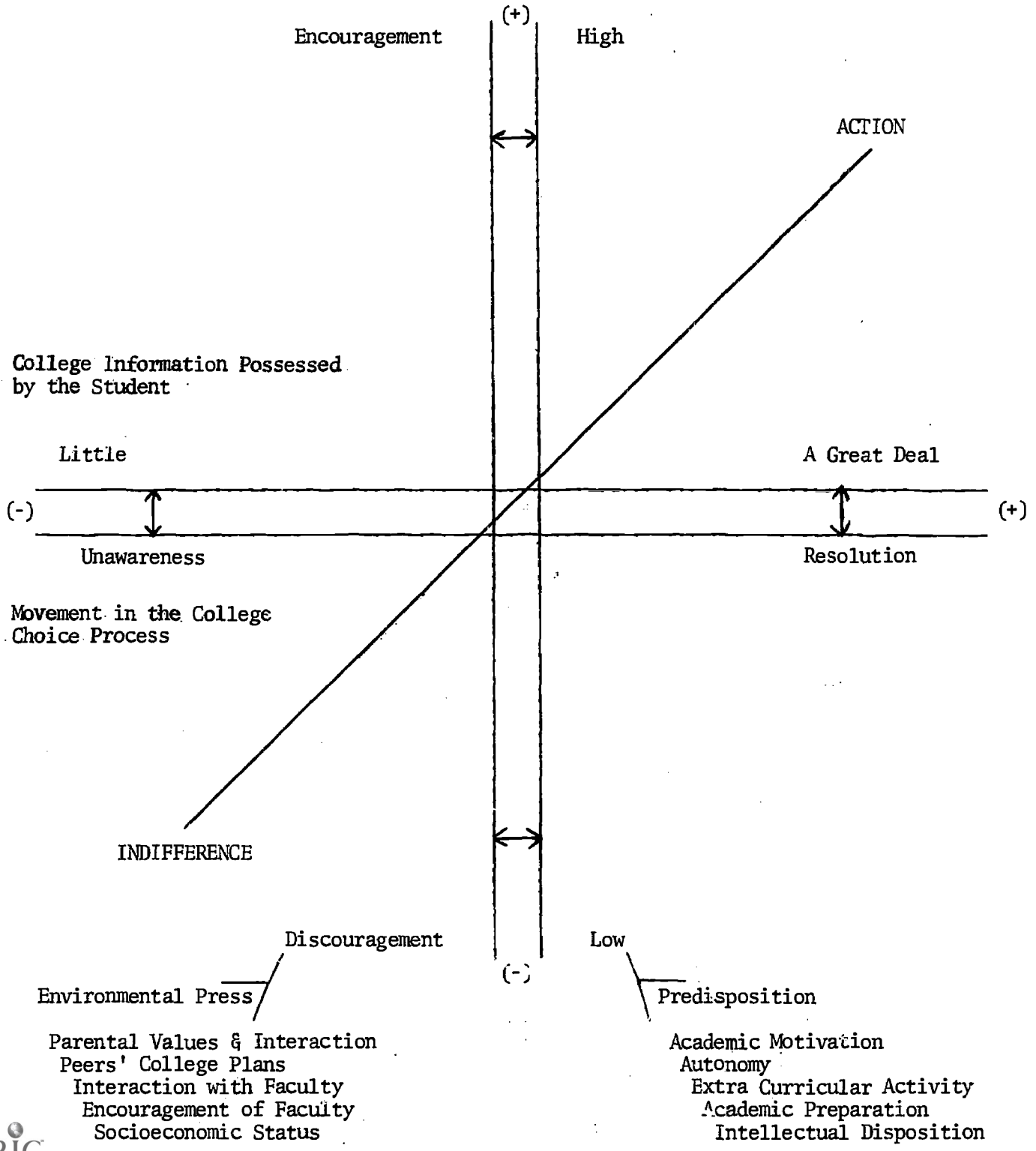
More specifically, the differences on all four variables were particularly great between those students who reported they planned

to attend college and those who did not. The differences on the four variables were also great among class levels, with one notable exception: the differences in Concern over College were nominal. There was also relatively little difference among grades for Need to Consider College when those who planned to attend college were considered separately. When the students who did not plan to attend college were considered separately there were essentially negligible differences among grades on both the Concern and Involvement scales. The seniors who did not plan to enter college had much higher scores (beyond a standard deviation) than the noncollege freshmen on Need to Consider College and Information; yet the non-college seniors' scores were no higher than those of the freshmen who planned to enter college on these scales.

Longitudinal analyses of the same students over a four-year period would provide a truer test of Seron's model. Nevertheless, it does appear to have applicability. At the same time more is involved in the decision to attend college than Seron's model accounts for. This is especially evident in view of the differences between those who did and did not plan on college beginning with the freshman year, and the lack of difference in concern at all class levels. Indications are that information about college is not enough to promote concern about it, and that information is certainly too late if provided only in the senior year of high school.

Perhaps a still more relevant and generally applicable model is available by imposing a student-characteristic model, (suggested by the multivariate analyses previously discussed) upon the infor-

Figure 4


(+)
Encouragement
High
ACTION
College Information Possessed by the Student
Little
A Great Deal
(-)
(+)
Unawareness
Resolution
Movement in the College Choice Process
INDIFFERENCE
Discouragement
Low
(-)
Environmental Press
Predisposition
Parental Values & Interaction
Peers' College Plans
Interaction with Faculty
Encouragement of Faculty
Socioeconomic Status
Academic Motivation
Autonomy
Extra Curricular Activity
Academic Preparation
Intellectual Disposition

mational model of Seron's as indicated in Figure 4. The two horizontal grids represent the two dimensions in Seron's model: college information possessed by the student, and amount of movement in the college choice process. Ideally, the model depicted in Figure 4 would be three dimensional, showing the horizontal grids perpendicular to each other, the vertical grids perpendicular to each other on another plane, and both planes perpendicular to each other.

The point is that the two horizontal dimensions interact with or are dependent upon each other, symbolized by the reciprocal or double arrows between the grids. The vertical dimensions of environmental press and predisposition also interact with each other and, in turn, together interact with college information and college choice movement. The elements listed as contributing to environmental press are those that have consistently been manifest in the research, either separately or in clusters, associated with the decision to attend college. The elements of predisposition, likewise, are those that have consistently been found to be relevant to the disposition to attend college prior to entrance and persistence after entrance. Both the press and predisposition variables are those that have been corroborated statistically as potent, interacting variables predictive of college decisions in the multivariate and particularly the discriminant analyses of Dole and Weiss (1968), Flanagan and Cooley (1966), and Trent (in press). They are listed roughly in the order of their weight as predictors of decisions about or patterns of college attendance.

Of primary importance is the regression line determined by the interaction of the various grids. At the most negative position the student will be entirely indifferent to college and at the most positive he will be actively engaged in deciding upon, preparing for, or entering college, depending upon the juxtaposition of his "scores" on the four dimensions of the model.

As a matter of fact the elements involved and their interactions are measurable, at least to some degree. Therefore, one can indeed speak of "scores" in reference to this model, and their predictive power. Scores on environmental press towards college, predisposition towards it, awareness of it, and information about it should be highly correlated; high scores on all these elements should constitute an almost sure prediction of deciding about college and also generally deciding positively to enter college. Low scores should predict the opposite. Mixed high and low scores should indicate less action towards decision-making as well as specifically where compensation would encourage appropriate action if deemed desirable. For example, where it is known parents are discouraging, surrogates such as teachers or counselors should take their place in a consistent manner if it is impossible to change the behavior of the parents. Where information about self or college is lacking, counseling for decision-making through the development of appropriate consideration of alternatives might well be instigated in the manner suggested by Gelatt (1962) or Yabroff (1964).

The model should be tested and both it and the measurements of its components should be refined. This development is urgent.

Nevertheless, the theory and data in this paper strongly suggest that even in its present form the model comprehensively depicts the dynamics of college decision-making. Moreover, the model does so in such a way that decisions regarding college can be predicted and, given adequate time and resources, modified where appropriate.

CONCLUSION

Any comprehensive consideration of universal higher education must take into account that there is nothing universal about the decision to enter college. A host of factors influence the aspiration to attend college as well as access to higher education. The establishment of the goal of universal higher education for all who can profit from it cannot take place without giving serious attention to just who it is that can indeed profit from it, and under what conditions. The intent of the present review of factors associated with college decision-making was to provide some attention to these issues. A brief summary of aspects of the review and some of their implications follow in a series of propositions:

(1) The decision to enter college is part of an enduring process. The decision to attend college is the result of an accumulative, interrelated, and interacting multivariate process that begins during earliest childhood, as indicated in the above commentary and following propositions.

(2) Socioeconomic status is a complex environmental press on college decision-making. A primary factor in this process is socioeconomic status, but not financial status as such.

Socioeconomic status is a complex environmental press with life-long effects. It is centered in the family, but includes peer groups, specific locale, school, and community as well. It conditions the breadth of contacts, experiences, awareness, needs, and interests which contribute to educational and vocational aspirations. It also affects academic self-concept, motivation, self-competency, leadership, extracurricular involvement, interest in abstract thinking and ideas, personal autonomy, positive interpersonal relationships, and positive relationships with authority, all elements related to academic achievement and aspiration.

(3) Motivation primes the established behavior underlying educational decisions. Motivation is the catalytic force underlying the decision to attend college. Broadly defined, it is a need or desire accompanied by the intention to attain a goal that will satisfy the need; it is an internal state that controls behavior by determining the strength and specificity of action out of various presumed alternatives. Academic motivation, like motivation generally, originates and is observable from an early age. The decision to attend college, as a product of motivation, is the cumulative result of established, stable behavior which is resistant to change. Important variables that form this behavior from earliest childhood are: selective rewards; inculcated values; experience of approval, acceptance, adequacy, mastery of the environment, competency and esteem; expectation; and interaction

with the environment generally, and significant others in that environment. Emotional acceptance of a child, his academic motivation, and his perceived competence, worth, and social power are interrelated elements that determine his position in class, his attitudes and decisions about education, and his role and position as an adult. As noted, these elements are observable early in school, and may then be modified, although not without difficulty.

(4) Parental influence is primary in educational-vocational decision-making. Parents constitute the earliest and most potent environmental press on decision-making. Middle class parents, particularly, foster academic motivation underlying the decision to attend college. Parental factors associated with academic motivation, need for achievement, and aspirations include: reward for verbal behavior; high expectations; encouragement to attend college; personal traits of ambition, drive and intellectual interests; encouragement of independence and self-responsibility; guidance tempered by permissiveness; democratic family structuring; decision-sharing; and interest in, interaction with, and rapport with children. Characteristics more frequently found among lower socioeconomic parents and which have a negative affect on educational achievement and aspiration include: failure to reward verbal behavior and recognize individual merit; conditional show of love; the autocratic maintenance of the family structure; authoritarian disposition; and fostering dependency.

(5) Peer groups represent an important environmental press on educational decisions. Peer groups can influence education. Students who respect their fathers (and their fathers' occupations) identify with them more and are more college oriented. Students who do not are more peer oriented and less college oriented. Where both parents and peers encourage education, the student is most likely to decide upon college.

(6) Religious background and minority status represent subcultural presses on decision-making. Two subcultural elements of the socioeconomic environment which have a bearing on educational decisions are religious background and minority status. Values pertaining to very conservative or fundamentalist denominations have in the past had the effect of encouraging an ingroupness and suspicion of ideas of the larger, educated society that has inhibited intellectual interests and high educational aspirations. Members of black and Mexican-American minority groups have to contend with a second language problem, circumscribed living conditions, and certain values that are incompatible with middle class prerequisites and norms for academic achievement and motivation. Academic aptitude scores are limited in their power to predict educational achievement and aspirations for minority students. However, achievement orientation, degree of positive self-concept, sense of self-competency, self-esteem, and sense of personal control of the environment are variables important to educational achievement and aspirations among minority students.

(7) Schools, although capable of exerting a positive influence on academic achievement and aspiration, are generally neutral or negative in influence. Schools are generally found to exert only a negligible influence on students's achievements and aspirations, if any. Teachers and counselors work mostly with middle class youths who are already motivated academically. Where parental encouragement is lacking, schools do not compensate. In the case of minority students schools tend to set up barriers to learning. Teachers are not sensitive to the nature, needs, experiences, and learning habits of minority students. They frequently reinforce handicaps and negative self-images of minority students by their own prejudgments, and by their insistence that minority students behave in school in middle class terms that are not part of their environment. Experiments and special programs, however, have demonstrated that consistent, appropriate efforts by properly trained staff can make appreciable differences in the achievements and aspirations of students. The efforts must be enduring, comprehensive, and intensive to be sufficiently effective.

(8) Community characteristics affect educational decisions. Apparently communities as a whole exert an environmental press on students' perceptions and values that is somewhat independent of the press of family, friends, and school. Wide community variation in college plans and attendance has been

found in state-wide and cross-country studies. Decisions to attend college appreciably diminish among students in rural communities compared with others, and appreciably increase in communities with a large proportion of professional workers, regardless of the students' academic aptitude or socio-economic status. Generally, communities that provide easy access to inexpensive colleges such as public junior colleges have the highest proportion of students who decide upon college. This is true particularly for students at the lower levels of socioeconomic status or academic inaptitude, or who are less sure of their plans than other students.

(9) Educational decisions are also vocational decisions. The greatest proportion of students who decide upon college do so primarily for vocational purposes, and even those who have another purpose in mind, such as attaining a liberal education, generally attend college for vocational purposes also. Career decisions, therefore, vitally effect educational decisions. The perception the student forms of the adult professional or occupational role he shall assume bears directly on his educational aspirations. Vague goals contribute to indecision about education; college-bound students, however, tend to be goal-oriented. In addition, the earlier the educational-vocational decision-making of students the more likely it is that they will enter college.

(10) The dynamics of decision-making are diverse. The sources and developmental features of academic motivation can be traced and categorized according to common patterns

with some degree of accuracy. But this is not to say that the dynamics of educational decisions or the specific decision to attend college are of a single kind. Underlying the motivation leading to the decision to attend college may exist quite different needs, realized in different ways by individuals of different backgrounds and characteristics.

(11) Decision-making is group-rooted and can change best in a group situation. The individual gauges his values and behavior to conform to the basic groups to which he is exposed and with which he identifies. At the same time the group discourages individual divergence from its norms. Decisions are made and carried out most effectively when supported by the group, arrived at by group consensus, when the individual feels he has or could have participated in the decision-making, and when the individual feels accepted by the group. This may help to explain why minority students have been found to change in educational achievement and aspiration when they have become part of an integrated classroom but not when attending schools that were "theoretically" integrated but which maintained segregated classrooms. It also indicates the advisability of assuring that students who can profit from college are accepted in a group that will reinforce the decision to enter college, particularly if the students belong to family or peer groups that would tend to discourage college. There is another reason for for positive reinforcement from reference groups. Students who are anxious about their own status may not be free to

assume the level of anxiety that may be prerequisite to the need for achievement. Group acceptance and support of the individual can release him from anxiety about himself so that he can withstand the anxiety of academic involvement without excessive personal threat.

(12) The interaction and relative weight of variables that contribute to the decision to enter college are identifiable and can be used to assist educational-vocational decision-making diagnostically and "therapeutically." Recent research has begun to identify measurable psycho-sociological variables that are predictive of various patterns of college attendance or nonattendance. The interaction of these variables has been demonstrated and also the relative weight they possess in predicting college entrance and persistence. In the meantime the investigation of the steps that are involved in decision-making has led to the development of models designed to assist students to make more appropriate educational-vocational decisions in counseling situations by organizing needed information so that they can understand and appropriately choose from among alternatives before them. Conceivably the combination of the student characteristics paradigm with the decision-making model would provide the optimum opportunity to diagnose students' educational potential from an early age, to provide consistent assistance in areas known to be in need of compensation, and to provide comprehensive informational input to students to maximize their self understanding

and consequent educational and career decisions.

(13) In the context of the above propositions educational and government planners must further clarify what they intend by universal higher education. There are many who have the potential for higher education and who no doubt could profit from it, but their potential is suppressed by their socioeconomic environment and school experiences before they enter high school. Simply to assure access to some college through such means as scholarships after high school is not to provide higher education for those who have decided against or have essentially been prevented from entering college long before that time. Only compensatory programs initiated early in childhood and continued intensely throughout grade school and high school will make higher education a reasonable option for them. Clearly, financial assistance, as such, is not the major determinant of college attendance, whatever one decides about his education. On the other hand questions must be raised about how profitable higher education is for many once they are assured entrance to college. Higher education is no panacea, and perhaps other post-high school experiences would be much more beneficial to many not in college or who will enroll in the future. Without further evaluation, the assumption that universal higher education, ipso facto, will be generally beneficial involves grave risk.

(14) The provision of universal higher education and the understanding of individual decisions regarding college

specifically requires a comprehensive program of research and evaluation. Again, in light of the above propositions the intelligent, optimum provision of higher education is dependent upon research and evaluation programs, including the following interrelated objectives:

(a) to learn more about who specifically can profit in what ways from how much of what kind of higher education;

(b) to improve the information base regarding the dynamics of educational-vocational decision-making and the refinement of models designed to apply this knowledge;

(c) to learn how to restructure the socioeconomic environment beneficially when it is found debilitating to optimum educational-vocational decision-making;

(d) to evaluate programs designed to assist students in their educational achievements and decisions, to document the common elements of these programs found to be most effective, and to learn how to apply them economically on a wide scale;

(e) to learn how to develop integrated educational, counseling, and social reference groups to compensate for negative press from the socioeconomic environment;

(f) to learn what characteristics and techniques of teachers, counselors and schools best elicit behavior from youths that is directed toward the realization of their potential, sense of worth, and satisfaction.

(14) Optimum decision-making in reference to universal

higher education requires revision in the allocation of professional resources. In the context of this paper professional resources in the schools must at a minimum meet four objectives at all grade levels:

(a) the consistent provision of supportive, integrated group experiences and communication with parents;

(b) the recruitment and training of teachers sensitive to the needs and natures of a diversity of students without prejudging them;

(c) the recruitment and training of teachers who will apply techniques designed to elicit the greatest potential and satisfaction from the diversity of students;

(d) to provide enough personnel to be able to assist students effectively in appropriate decision-making and other forms of personal development from the earliest years of school.

These propositions are presented with the full knowledge that the actions they suggest will be difficult and expensive to implement. They are also recommended at a time when the withdrawal of public support for the schools is reaching a point that hints of social suicide. And that is precisely the point: American society depends upon a vital educational system. To repress it, to halt its self-evaluation and consequent program improvement is to debilitate it and the rest of society.

Therefore, educational and government planners may be faced with a critical decision of their own: whether to acquiesce to distraught citizens who are unwilling to relinquish more of their affluence

for the sake of the development of society's educational institutions and all of its citizens who stand to benefit from these institutions, or whether to try to enlighten the public as to its educational needs and to promote the allocation of resources necessary to meet these needs. To reiterate, whatever the form universal higher education is to take, it will not be accomplished through rhetoric. Universal higher education can only be realized through the universal support and action of those who are responsible for its provision.

REFERENCES

Arkava, M.L. Alterations in achievement motivation through counseling and intervention. Journal of Secondary Education, 1969, 44, 74-80.

Astin, A. W. The college environment. Washington, D. C.: American Council on Education, 1968.

Atkinson, J. W., & Litwin, G. H. Achievement motive and test anxiety conceived as motive to approach success and motive to avoid failure. Journal of Abnormal and Social Psychology, 1960, 60, 52-63.

Austrin, H. R. Cross validation of an attitude scale for the identification of high and low academic achievers. Journal of Educational Research, 1965, 58, 426-428.

Bailey, B. H. Characteristics of high school seniors as related to subsequent college attendance. Report No. CRP-2152, Morgantown: West Virginia University, 1966.

Baird, L. L. The educational goals of college-bound youth. ACT Research Report No. 19, Iowa City: American College Testing Program, 1967. (a)

Baird, L. L. Family income and the characteristics of college-bound students. ACT Research Report No. 17, Iowa City: American College Testing Program, 1967. (b)

Beezer, R. H., & Hjelm, H. F. Factors related to college attendance. Department of Health, Education, and Welfare, Cooperative Research Monograph No. 8. Washington, D. C.: Government Printing Office, 1961.

Berdie, R. F., & Hood, A. B. Decisions for tomorrow. Minneapolis: University of Minnesota Press, 1965.

Berelson, B., & Steiner, G. A. Human behavior: An inventory of scientific findings. New York: Harcourt, Brace, 1964.

Betz, R. L., et. al. Perceptions of non-college-bound vocationally oriented high school graduates. Kalamazoo: Western Michigan University, 1968.

Bloom B. Stability and change in human characteristics. New York: Wiley, 1964.

Bond, H.M. A study of factors involved in the identification and encouragement of unusual academic talent among underprivileged populations. Report No. BR-5-0859 & CRP-458; Atlanta: Atlanta University, 1967.

Bordua, D. J. Educational aspirations and parental stress on college. Social Forces, 1960, 38, 262-269.

Bowles, R. T., & Slocum, W. L. Social characteristics of high school students planning to pursue post high school vocational training. Final Report No. 17. Report No. BR-7-0031, Washington, D. C.: Research Coordinating Unit for Vocational Education, June, 1968.

Brackbill, U., & Jack, D. Discrimination learning in children as a function of reinforcement value. Child Development, 1958, 29, 185-190.

Bradley, R. W., & Sanborn, M. P. Ordinal position of high school students identified by their teachers as superior. Journal of Educational Psychology, 1969, 60, 41-45.

Bridgman, D. S. Where the loss of talent occurs and why. In College Entrance Examination Board (ed.) The Search for Talent; College Admissions, New York: College Entrance Examination Board, 1960, 30-45.

Brittain, C. V. Adolescent choices and parent-peer cross pressures. American Sociological Review, 1963, 28, 385-391.

Brown, C. H. Post high school plans and factors associated with college selection for Delaware high school seniors, 1966. Newark: Division of Urban Affairs, Delaware University, 1966.

Brown, R. Social psychology. New York: Free Press, 1965.

Brown, R. D. Effects of structured and unstructured group counseling with high- and low-anxious college underachievers. Journal of Counseling Psychology, 1969, 16, 209-214.

Caplin, M. D. Self-concept, level of aspiration and academic achievement. Journal of Negro Education, 1968, 37, 435-439.

Centi, P. Personality factors related to college success. Journal of Educational Research, 1961-1962, 55, 187-188.

Christiansen, J. R., et. al. Educational and occupational progress of rural youth in Utah--a follow up study. Brigham Young University, Provo, Utah, Report No. SS-BULL-Z, Washington, D. C.: Department of Agriculture, 1962.

Clark, B. R. The open door college: a case study. New York: McGraw-Hill, 1960.

Clark, B. R., & Trow, M. The organizational context. In T. M. Newcomb & E. K. Wilson (Eds.), College peer groups. Chicago: Aldine, 1966.

Clark, K. B., & Plotkin, L. The Negro student at integrated colleges. New York: National Scholarship Service and Fund for Negro Students, 1963.

Clarke, R., Gelatt, H. B., & Levine, L. A decision-making paradigm for local guidance research. Personnel and Guidance Journal, 1965, 44, 40-51.

Coleman, J. S. Equality of educational opportunity. Report No. FS 5.238:38001, Washington, D. C.: U. S. Government Printing Office, 1966.

Coleman, J. S. The adolescent society. New York: Free Press, 1961.

College of Education, Arizona State University. Investigation of mental retardation and pseudomental retardation in relation to bilingual and subcultural factors. Tempe: Arizona State University, 1960.

Colorado State University. A continuation of the 1963 high school graduates follow-up study. Fort Collins: Colorado State University, 1966.

Coster, J. K. Some characteristics of high school pupils from three income groups. In R. Grinder (Ed.), Studies in adolescence. New York: Macmillan, 1963.

Crandall, V. J. Reinforcement effects of adult reactions and nonreactions on children's achievement expectations. Child Development, 1963, 34, 335-354.

Crawford, N. C., Jr. Effects of offers of financial assistance on the college-going decisions of talented students with limited financial means. Report No. NMSC-RR-Vol. 3, No. 5, Evanston, Illinois: National Merit Scholarship Corp., 1966.

Creager, J. A., et. al. National norms for entering college freshmen - Fall 1969. ACE Research Reports, 4 (7), Washington, D. C.: American Council on Education, 1969.

Crittenden, E. A., et. al. School achievement of first- and second-born siblings. Child Development, 1968, 39, 1223-1228.

Cross, K. P. The junior college student: a research description. Princeton: Educational Testing Service, 1968.

Delavan, F. E. Second annual follow-up study of former high school pupils. Report No. RR-9-SER-1965-66, Sacramento California: City Unified School Districts, 1966.

Deutsch, M. Field theory in social psychology. In G. Lindzey (Ed.), Handbook of social psychology. Reading, Mass.: Addison-Wesley, 1959.

Dinklage, L. B. Adolescent choice and decision-making--a review of decision-making models and issues in relation to some developmental stage tasks of adolescence. Report No. CRP-C-04, Cambridge: Graduate School of Education, Harvard University, 1966.

Dole, A. A., & Weiss, D. J. Correlates of the reported determinants of college attendance. Journal of Counseling Psychology, 1968, 15, 451-458.

Donovan, J. D. The academic man in the Catholic college. New York: Sheed and Ward, 1964.

Douvan, E., & Kaye, C. Motivational factors in college entrance. In N. Sanford (Ed.), The American College. New York: Wiley, 1962, 199-224.

Drabick, L. W. Perceived sources of influence upon occupational and educational expectations. Educational Research Report No. SER-8, Raleigh: North Carolina State University, 1967.

Dubin, R. The world of work: industrial society and human relations. New York: Prentice-Hall, 1958.

Dyer, H. S. Recruiting the disadvantaged: an urgent need. In College Entrance Examination Board (Ed.), College admissions policies for the 1970's. New York: College Entrance Examination Board, 1968.

Edwards, W. Behavioral decision theory. Annual Review of Psychology, 1961, 12, 473-499.

Ehling, W. P. Development of a computer model of the factors which influence high school students to continue or discontinue their education. Report No. CRP-S-242, Syracuse, New York: Syracuse University, 1966.

Elder, G. H., Jr. Achievement orientations and career patterns of rural youth. Sociology of Education, 1963, 37, 30-58.

English, H. B., & English, A. C. A comprehensive dictionary of psychological and psychoanalytical terms. New York: Longmans, Green, 1961.

Epps, E. G. Correlates of academic achievement among northern and southern urban Negro students. Journal of Social Issues, 1969, 25, 55-70.

Feldman, K. A., & Newcomb, T. M. The impact of college on students. San Francisco: Jossey-Bass, 1969.

Fenske, R. H. Association between local college availability and plans for college attendance of public high school seniors with differing attributes and socio-economic characteristics. Paper presented at the Annual Meeting of the American Educational Research Association, 1966.

Flanagan, J. C., & Cooley, W. W. Project talent: One-year follow-up studies. Cooperative Research Project No. 2333, Pittsburgh: University of Pittsburgh, 1966.

Flanagan, J. C., et. al. The American high school student. Final Report for Cooperative Research Project No. 635, Pittsburgh: Project Talent Office, University of Pittsburgh, 1964.

Frieke, B. G. OAIS handbook. Ann Arbor, Michigan: OAIS Testing Program, 1967.

Geiger, T. Recruitment of university students. Acta Sociologia, 1955, 1, 39-48.

Gelatt, H. B. Information and decision theories applied to college choice and planning. Paper presented to the Invitational Conference of the College Entrance Examination Board, 1966.

Gelatt, H. B. Decision-making: a conceptual frame of reference for counseling. Journal of Counseling Psychology, 1962, 9, 240-245.

Gelatt, H. B., & Clarke, R. B. The role of subjective probabilities in the decision process. Unpublished paper, undated. (mimeo.)

Gilbreath, S. H. Appropriate and inappropriate group counseling with academic underachievers. Journal of Counseling Psychology, 1968, 15, 506-511.

Gordon, C. W., Schwartz, A. J., Wenkert, R., & Nasatir, D. Educational achievement and aspirations of Mexican-American youth in a metropolitan context. CSE Report No. 36, Los Angeles: Center for the Study of Evaluation, University of California, 1968.

Grant, C. W. A follow-up study of spring, 1966, high school graduates in the state of Utah. Personnel and Guidance Journal, 1968, 47, 157-162.

Greeley, A.M. Continuation in research on the "religious factor". American Journal of Sociology, 1969, 75, 355-359.

Greeley, A.M. Religion and careers. New York: Sheed and Ward, 1963.

Green, R. L. The black quest for higher education: An admissions dilemma. Personnel and Guidance Journal, 1969, 47, 905-911.

Gribbons, W. D., & Lohnes, P. R. Career development. Report No. CRP-1211, Weston, Mass.: Regis College, 1966.

Grinder, R. E. A study of the influences of the fathers' job and social goals of youth. Final report. Report No. BR-5-0121, Madison: University of Wisconsin, 1967.

Gross, N. The sociology of education. In R. K. Merton, et. al. (Eds.), Sociology today: problems and prospects. New York: Basic Books, 1959.

Gurin, P., Gurin, G., Lao, R. C., & Beattie, M. Internal-external control in the motivational dynamics of Negro youth. Journal of Social Issues, 1969, 25, 29-53.

Gysbers, N. C., Johnson, J.A., & Gust, T. Characteristics of homemaker- and career-oriented women. Journal of Counseling Psychology, 1968, 15 (2), 541-546.

Havighurst, R. J., & Neugarten, B. L. Society and education. (3rd ed.) Boston: Allyn and Bacon, 1967.

Harp, J., & Morton, M. Factors associated with the college attendance of youth. Reports No. HR-348 and BR-5-0146 Contract OEC-6-85-074, Ithaca: Cornell University, 1966.

Heist, P., & Yorge, G. Omnibus personality inventory manual. New York: Psychological Corporation, 1968.

Herberg, W. Protestant, Catholic, Jew: An essay in American religious sociology. New York: Doubleday Anchor, 1960.

Hernández, D. Mexican American challenge to a sacred cow: A critical review and analysis focusing on two UCLA Graduate School of Education research studies about Mexican American "values" and achievement. Monograph No. 1, Los Angeles: Mexican American Cultural Center, University of California, Los Angeles, 1970.

Herson, P. F. An assessment of changes in achievement motivation among Upward Bound participants at the University of Maryland. Journal of Negro Education, 1968, 37, 383-391.

Hoffman, L. W., & Hoffman, M. L. Child development research. Vol. 2. New York: Russell Sage Foundation, 1966.

Hollingshead, A. B., & Redlich, F. C. Social class and mental illness: A community study. New York: Wiley, 1958.

Horner, J. T., et. al. Factors relating to occupational and educational decision-making of rural youth: Research summary. Report No. DOA-EDUC-REP-1, Lincoln: College of Agriculture, University of Nebraska, 1967.

Hunt, D. E., & Hardt, R. H. The effect of Upward Bound programs on the attitudes, motivation, and academic achievement of Negro students. Journal of Social Issues, 1969, 25, 117-129.

Hyman, B. The relationship of social status and vocational interests. Journal of Counseling Psychology, 1956, 3, 12-16.

Jaffe, A. J., & Adams, W. College education for United States youth: The attitudes of parents and children. American Journal of Economics and Sociology, 1964, 23, 269-283.

Jennings, M. K., & Niemi, R. G. Family structure and the transmission of political values. American Political Science Review, March, 1968.

Juarez, R. Z., & Kurlesky, W. P. Ethnic group identity and orientations toward educational attainment: A comparison of Mexican American and Anglo boys. Report No. SRP 3-61, SRP H-2611, College Station Agricultural Experiment Station, Texas A and M University, 1968.

Kagan, J., & Moss, H. A. Birth to maturity: a study in psychological development. New York: Wiley, 1962.

Kahl, J. A. Educational and occupational aspirations of "common man" boys. Harvard Educational Review, 1953, 23, 186-203.

Katkovsky, W., et. al. Parents' attitudes toward their personal achievements and toward the achievement behaviors of their children. Journal of Genetic Psychology, 1964, 104, 67-82.

Katz, I. A critique of personality approaches to Negro performance, with research suggestions. Journal of Social Issues, 1969, 25, 13-27.

Kelley, H. H., & Thibaut, J. W. Experimental studies of group problem solving and process. In G. Lindzey (Ed.), Handbook of social psychology. Reading, Mass.: Addison-Wesley, 1959.

Klitgaard, G. C., A gap is bridged: Successful group counseling of college potential Mexican-Americans. Journal of Secondary Education, 1969, 44 (2), 55-57.

Knupfer, G. Portrait of the underdog. Public Opinion Quarterly, 1947, 11, 103-114.

Krech, D., & Crutchfield, R. S. Elements of Psychology, New York: Knopf, 1962.

Krumboltz, J. D., et. al. A study to determine how counseling procedures can be used to help students make decisions and plans more effectively. Report Nos. CRP-S-246 and BR-5-8128, Contract OEC-5-10-363, Palo Alto: Stanford University, 1966.

Kurland, N. D. Transition from school to college: New dimensions in higher education, No. 17. Durham: Duke University, 1967.

Kuvlesky, W. P., & Jacob, N. L. Educational status projections of rural youth: Annotations of the research literature. Report No. DTR-68-3, College Station: Department of Agricultural Economics and Sociology, Texas A and M University, 1968.

Lenski, G. The religious factor. New York: Doubleday Anchor, 1963.

Lesser, G. S., et. al. Mental abilities of children in different social and cultural groups. Cooperative Research Project No. 1635, Washington, D. C.: United States Government Printing Office, 1963.

Levenson, E. A., Why do they drop out? Teaching and Learning. 1965, 25-32.

Lindstrom, D. E. Factors affecting post-high school: Educational and job plans of rural youth in eight Illinois counties in the 1963-64 school year. Report No. AES-BULL-731, Urbana: College of Agriculture, University of Illinois, 1968.

Little, J. K. The Wisconsin study of high school graduates. Educational Record, 1959, 40, 123-128.

McCandless, B. Childhood and adolescence. New York: Holt, 1961.

McClelland, D. C. The achieving society. Princeton: Van Nostran, 1961.

McClelland, D. C. (Ed.) Studies in motivation. New York: Appleton-Century-Crofts, 1955.

McCreary, W. H. Student-parent counselor conferences, an aid in educational planning. Sacramento: California State Department of Education, 1965.

McPartland, J. The relative influence of school and of classroom desegregation on the academic achievement of ninth grade Negro students. Journal of Social Issues, 1969, 25, 93-102.

Mallinson, G. C. Characteristics of non-college vocationally oriented school leavers and graduates. Bureau No. BR 5-0142, Kalamazoo: Western Michigan University, 1968.

Maryland State Department of Education. Our dropouts: What can schools do ? 1963.

Mathis H. I. Relating environmental factors to aptitude and race. Journal of Counseling Psychology, 1968, 15, 563-568.

Medsker, L. L., & Trent, J. W. The influence of different types of public higher institutions on college attendance from varying socioeconomic and ability levels. Cooperative Research Project No. 438, Berkeley: Center for the Study of Higher Education, University of California, 1965.

Muskegon Guidance Project. The effect of additional counseling on the able student's vocational and educational planning. Muskegon, Michigan: Muskegon Public Schools, 1965.

Miller, D., & O'Connor, P. Achiever personality and academic success among disadvantaged college students. Journal of Social Issues, 1969, 25, 103-116.

Myers, A. E. Risk taking and academic success and their relation to an objective measure of achievement motivation. Educational and Psychological Measurement, 1965, 25, 355-363.

Newcomb, T. M., & Wilson, E. K. (Eds.) College peer groups. Chicago: Aldine, 1966.

Noll, V. H. Relation of scores on Davis-Eells Games to socio-economic status, intelligence test results, and school achievement. Educational and Psychological Measurement, 1960, 20, 119-130.

O'Shea, A. J. Peer relationships and male academic achievement: A review and suggested clarification. Personnel and Guidance Journal, 1969, 47, 417-423.

Pace, C. R. The measurement of college environments. In R. Tagiuri and H. Litwin (Eds.), Organizational climate: Explorations of a concept. Boston: Graduate School of Business Administration, Harvard University, 1968.

Parrish, K., & Weldy, G. R. Good scholarship: Do students really care? Clearing House, 1969, 43, 275-279.

Pearl, A. The school dropout problem, Rochester, part I. New York State Division for Youth, 1962.

Peterson, R. E. College student questionnaire: Technical manual. Princeton: Educational Testing Service, 1968.

Peterson, R. E. Comparison data for college student questionnaires, part I. Princeton: Educational Testing Service, 1966.

Phelps, M. O. An experiment in spring college days. College and University, 1969, 44, 197-198.

Popenoe, P. (Ed.) Research notes. Family Life, 1969, 29 (6), 5.

Reed, H. B. College students' motivations related to voluntary dropout and underachievement. Journal of Educational Research, 1968, 9, 412-416.

Rehberg, R. A. Selected determinants of adolescent educational expectations. Reports No. BR-5-0217-OP-12, Eugene: University of Oregon, 1966.

Reisman, F. The culturally deprived child. New York: Harper, 1962.

Richards, J. M., Jr. & Holland, J. L. A factor analysis of student "explanations" of their choice of college. ACT Research Report No. 8, Iowa City: American College Testing Program, 1965.

Riecken, H. W., & Homans, G. C. Psychological aspects of social structure. In G. Lindzey (Ed.), Handbook of social psychology. Reading, Mass.: Addison-Wesley, 1959.

Roberts, R. J., & Nichols, R. C. Participants in the national achievement scholarship program for Negroes. Report No. NMSC-R-R-2 (2), Evanston: National Merit Scholarship Corporation, 1966.

Rogoff, N. Local social structure and educational selection. In A. H. Halsey, J. Floud, and C. A. Anderson (Eds.), Education, economy, and society: A reader in the sociology of education. New York: Free Press, 1963.

Rose, H. A. Prediction and prevention of freshman attrition. Journal of Counseling Psychology, 1965, 12, 399-403.

Rose, H. A., & Elton, C. F. Another look at the college dropout. Journal of Counseling Psychology, 1966, 13, 242-245.

Rosenthal, R., & Jacobson, L. Pygmalion in the classroom -- teacher expectations and pupils' intellectual development. New York: Holt, Rinehart & Winston, 1968.

Rosenski, E. F. Social class of medical students. Journal of the American Medical Association, 1965, 193, 95-98.

Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychological Monographs, 1966, 80, 1-28.

Russell, I. L. Motivation for school achievement: measurement and validation. Journal of Educational Research, 1969, 62, 263-266.

Sampson, E. E. Birth order, need achievement, and conformity. Journal of Abnormal and Social Psychology, 1962, 64, 155-159.

Sanders, J. E., & Palmer, H. The financial barrier to higher education in California. Sacramento: California State Scholarship Commission, 1965.

Sanders, W. B., Osborne, R. T., & Green, J. E. Intelligence and academic performance of college students of urban, rural and mixed backgrounds. Journal of Educational Research, 1955, 49, 185-193.

Sarri, R. C., & Vinter, R. D. School goals, social class, and pupil careers. Paper presented at the 44th annual meeting of the American Orthopsychiatric Association, 1967.

Satir, K. R. Personality factors as predictors of high ability dropouts. Journal of School Psychology, 1968-1969, 7, 22-25.

Schoenfeldt, L. F. Ability, family socioeconomic level and advanced education. Paper presented at the annual conference of the American Educational Research Association, Chicago, 1968.

Schwartz, A. J. Comparative values and achievement of Mexican-American and Anglo pupils. CSE Report No. 37, Los Angeles: Center for the Study of Evaluation, University of California, 1969.

Sechrest, L. B. The motivation in school of young children: Some interview data. Journal of Experimental Psychology, 1962, 30, 327-335.

Selinger, A. D. The American Indian graduate: After high school, what? Portland: Northwest Regional Educational Laboratory, 1968.

Seron, M. S. Analysis of factors which determine choice of college among urban, suburban, and rural high school students. OEO Project No. 7-E-049, Los Angeles: University of California, 1967.

Seron, M. S., & Bowersox, S. H. Evaluation of a college information program and implications for defining the college choice process in the secondary school. Unpublished research report, Skokie, Illinois: Niles Township High Schools, 1963.

Sewell, W. H. The educational and occupational perspectives of rural youth. Washington, D. C.: National Committee for Children and Youth, 1963.

Sewell, W. H. & Shah, V. P. Socioeconomic status, intelligence, and the attainment of higher education. Sociology of Education, 1967, 40, 1-23.

Sexton, V. S. Factors contributing to attrition in college populations: twenty-five years of research. Journal of Genetic Psychology, 1965, 72, 301-326.

Shaw, M. C., & McCuen, J. T. The onset of academic underachievement in bright children. Journal of Educational Psychology, 1960, 51, 103-108.

Shill, J. F. Educational aspirations, expectations, and abilities of rural male high school seniors in Mississippi. Report 24, Education series 4, Washington, D. C.: Office of Education, 1968.

Simpson, R. L. Parental influence, anticipatory socialization and social mobility. American Sociological Review, 1962, 27, 517-522.

Slocum, W. L. Educational aspirations and expectations of students in rural Washington high schools. Office of Education, Washington, D. C., Bureau of Research, Report No. BULL-690, Pullman: College of Agriculture, Washington State University, 1968.

Slocum, W. L. Social factors in academic mortality. College and University, 1956, 32, 53-64.

Solomon, D. Adolescents' decisions: a comparison of influence from parents with that from other sources. Marriage and Family Living, 1961, 23, 393-395.

Stinchcombe, A. L. Rebellion in a high school. Chicago: Quadrangle, 1969.

Strodtbeck, F. L. Family interaction, values and achievement. In D. C. McClelland, et. al. (Eds.), Talent and Society, Princeton: D. Van Nostrand, 1958.

Strodtbeck, F., et. al. Social status in jury deliberations. American Sociological Review, 1957, 22, 713-719.

Stroup, F., & Andrew, D. C. Barriers to college attendance. Cooperative Research Project No. 0008, Washington, D. C.: Office of Education, Department of Health, Education, and Welfare, 1959.

Super, D. E. The Psychology of Careers. New York: Harper, 1957.

Terrell, G., Jr., et. al. Social class and the nature of incentive in discrimination learning. Journal of abnormal and social psychology, 1959, 59, 270-272.

Tillery, D. School to college: distribution and differentiation of youth. Berkeley: Center for Research and Development in Higher Education, University of California, 1969. (Mimeo.) (b)

Tillery, D. The teacher on the guidance team. Adapted from a paper presented at the Annual Meeting of the American Personnel and Guidance Association, 1969. (Mimeo.) (c)

Tillery, D. The educational rites of passage. Paper presented at the Annual Meeting of the California Association of Women Deans and Vice-Principals, 1969. (Mimeo.) (a)

Tillery, D., Donovan, D., & Sherman, B. Helpfulness of parents, school personnel and peers to students with different educational aspirations. Paper presented to the American Psychological Association, San Francisco, 1968. (Mimeo.)

Tillery, D., Sherman, B., & Donovan, D. Scope grade eleven profile 1968 questionnaire selected items, a descriptive report from the Center for Research and Development in Higher Education, University of California, Berkeley. New York: College Entrance Examination Board, 1969.

Torrance, E. P. Motivating the creatively gifted among economically and culturally disadvantaged children. In J. C. Gowan & G. D. Demos (Eds.), The disadvantaged and potential dropout. New York: Thomas, 1966.

Trent, J. W. In and out of college: Processes and patterns of college attendance. San Francisco: Jossey-Bass, in press.

Trent, J. W. Catholics in college: Religious commitment and the intellectual life. Chicago: University of Chicago Press, 1967.

Trent, J. W., & Medsker, L. L. Beyond high school: A psychosociological study of 10,000 high school graduates. San Francisco: Jossey-Bass, 1968.

Trent, J. W., Athey, I., & Craise, J. L. Technology, education, and human development. Educational Record, 1965, 46, 93-103.

Verner, A. M. College education and vocational career. In W. B. Brookover (Ed.), The college student. New York: Center for Applied Research in Education, 1965.

Veroff, J., & Peele, S. Initial effects of desegregation on the achievement motivation of Negro elementary school children. Journal of Social Issues, 1969, 25, 71-91.

Werts, C. E. A comparison of male-female college attendance probabilities. Paper presented at the Annual Meeting of the American Personnel and Guidance Association, 1967.

Whiteman, P. H. Attitudes toward child rearing, personal characteristics, and religious group membership. Madison: University of Wisconsin, 1962. (Mimeo.)

Wright, W. W., & Jung, C. W. Why capable students do not continue their schooling. Bulletin of the School of Education, Indiana University, 1959, 35, (1).

Yabroff, W. W. An experiment in teaching decision-making. Report No. RB-9, Sacramento: California State Department of Education, September, 1964.

Yoesting, D. R., et. al. A longitudinal study of occupational aspirations and attainments of Iowa young adults. Report No. IAESP-1133, Ames: Iowa State University of Science and Technology, 1968.

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