American Beliefs and Attitudes About Intelligence

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PREFACE

IN JUNE, 1962, Russell Sage Foundation initiated a series of studies of the social consequences of standardized intelligence, aptitude, and achievement testing in the United States. The general purpose of the research program was to develop a broad sociological perspective on the current use of ability tests and on their consequences for individuals and for social organizations. The series of studies, which was under the direction of Orville G. Brim, Jr., David A. Goslin, and David C. Glass, was supported jointly by Russell Sage Foundation and Carnegie Corporation of New York, and the United States Office of Education. Its primary focus was on the social impact of tests of intellectual abilities rather than tests of other aspects of personality such as motivation, interests, or values.

This volume is one of several to result from the program of studies. Some have been published already,[1] and several others are in preparation. The latter will present reports on the use of tests in elementary schools and their impact on the elementary school students; on the use of personality and ability tests in American business and industry; and on the test publishing industry.

The basic technical report on this study, presenting instruments, field methods, and attitude frequencies, has been published previously by Russell Sage Foundation (Brim, Goslin, Glass, and Goldberg, 1965).

[1] Goslin, David A., *The Search for Ability*. Russell Sage Foundation, New York, 1963.

Brim, Orville G., Jr., *Intelligence: Perspectives 1965: The Terman-Otis Memorial Lectures* (with Richard S. Crutchfield and Wayne H. Holtzman). Harcourt, Brace & World, New York, 1966.

Goslin, David A., *Teachers and Testing*. Russell Sage Foundation, New York, 1967.

Brim, Orville G., Jr., John Neulinger, and David C. Glass, *Experiences and Attitudes of American Adults Concerning Standardized Intelligence Tests*, Technical Report #1. Russell Sage Foundation, New York, 1965.

Goslin, David A., Roberta R. Epstein, and Barbara A. Hallock, *The Use of Standardized Tests in Elementary Schools*, Technical Report #2. Russell Sage Foundation, New York, 1965.

Brim, Orville G., Jr., David A. Goslin, David C. Glass, and Isadore Goldberg, *The Use of Standardized Ability Tests in American Secondary Schools and Their Impact on Students, Teachers, and Administrators*, Technical Report #3. Russell Sage Foundation, New York, 1965.

Armor, David J., *The American School Counselor*. Russell Sage Foundation, New York, 1969.

Several articles also have reported this work: Brim, Orville G., Jr., "American Attitudes Toward Intelligence Tests," *American Psychologist*, vol. 20, 1965, pp. 125–130; Goslin, David A., "What's Wrong with Tests and Testing," *College Board Review*, vol. 66, Winter, 1967–1968, pp. 33–37; Goslin, David A., and David C. Glass, "The Social Effects of Standardized Testing in American Elementary and Secondary Schools," *Sociology of Education*, vol. 40, 1967, pp. 115–131; Neulinger, John, "Attitudes of American Secondary School Students Toward the Use of Intelligence Tests," *Personnel and Guidance Journal*, vol. 44, 1966, pp. 337–341.

The present book analyzes the attitudes and beliefs about intelligence and standardized intelligence tests of national samples of about 10,000 secondary school students. The secondary school survey was carried out in cooperation with the American Institutes for Research. In the fall of 1962 it became evident that some of the data already gathered by the American Institutes for Research through its Project Talent, and its access to national samples of secondary schools, provided an opportunity for a survey of attitudes toward ability tests on the part of secondary school students, teachers, and counselors, and for an appraisal of the extent of use of such tests. The sampling of schools, data gathering, and basic frequency tabulations were carried out by Project Talent. Preparation of the questionnaires, detailed analyses of the data, and the final volumes reporting the study were the responsibility of Russell Sage Foundation.

The adult survey was conducted in the spring of 1963 through the facilities of the National Opinion Research Center at the University of Chicago. A technical report presenting basic frequency tabulations of experiences and attitudes concerning tests, and in some instances cross-tabulations of selected variables, was published in 1965 by Russell Sage Foundation (Brim, Neulinger, and Glass).

Portions of Chapter 7 appeared in *Intelligence: Perspectives 1965*, by Orville G. Brim, Jr., Richard S. Crutchfield, and Wayne H. Holtzman, which was published in 1966 by Harcourt, Brace & World, Inc., New York.

The advisory committee to the Russell Sage Foundation studies gave valued assistance in the conception and planning of this study. The committee members were Bernard Berelson, John H. Fischer, Wayne H. Holtzman, Horace Miner, Wilbert E. Moore, Talcott Parsons, Henry W. Riecken, and Ralph W. Tyler.

A number of members of the Project Talent staff assisted in plannning the secondary school sample, editing the data collection questionnaire forms, and analyzing the data. These included, in addition to Isadore Goldberg, who had primary responsibility for the data collection phase of the work, John C. Flanagan, Frederick B. Davis, John T. Dailey, Robert L. Hawk, and William W. Cooley.

Many people have contributed to the preparation of this volume, and to the two surveys which it reports. We would like to give special thanks to Reneé Bash, Antoine N. Gal, Neville Gerson, Kathleen Grenham, Susan Kim, Hope J. Leichter, Anita R. Cochran, Mark Oromaner, Laurel Prazak, Suzanne M. Spencer, and David Werdegar.

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1 Introduction

THE NUMBER of standardized tests of ability given each year in the United States continues to rise. Almost all children have taken such standardized tests; probably 250 million standardized ability tests are administered in the American school system each year. A growing number of adults in American society have taken intelligence, aptitude, or achievement tests during their lifetimes, and those adults who have not taken tests themselves have frequently come in contact with tests through their children. At the adult level tests are used in educational systems, business firms, industrial concerns, in the armed services and civil service and government, and perhaps, to a lesser extent, by individuals themselves seeking information about their abilities.

The quantity of testing is noted only because it signifies the extent of a fundamental, important social process: that of making standardized appraisals of intelligence of the members of society, and then using this information as the basis for decisions, whether by social institutions about people, or individuals about themselves, which influence the life course of the humans who are tested. In modern American society intelligence seems increasingly to be singled out from the many characteristics of man and elevated to a position of high importance. We seem to be moving toward a society that is organized on the basis of standardized intelligence test scores, and in which the manpower conception of man prevails. The concern is to identify levels of talent and the stress is on the fullest development of talent for later use by society. Although the common use of standardized tests in the United States is at least a half-century old, it is only within the past decade or so that the use of these tests has attracted national attention. Measured intelligence has been raised to unusual heights of significance, perhaps because of the concern with identification and development of talent during the 1950s as a consequence of international competition, and probably also through other forces at work, of which one is the increased competition for access to

higher education caused by the substantially larger school-age population.

In this study we report on American beliefs and attitudes about intelligence as they were in the 1963–1964 period. We find that many people are confused and uninformed about intelligence and intelligence tests, and hold myths and fantasies about this human characteristic now given such emphasis by their society. We do find large and important differences in the American population in knowledge, beliefs, and attitudes about the nature of intelligence and intelligence tests. We hope to put the matter in better perspective, to "demystify" it, and to bring out in the open for study and discussion the beliefs and attitudes of the American public. We also discuss selected policy implications, that is, indications for social action, resulting from our analyses.

SOURCES OF CONCERN ABOUT STANDARDIZED INTELLIGENCE TESTS

We begin by briefly noting several reasons for public concern about the use of standardized tests. One source of concern about tests is personal, arising from the deep feelings that men have about their own self-worth and about the value of other persons. Still another but related basis of interest in the expanding use of tests is ideological, arising from beliefs about the ways in which society should be organized, and whether or not the concept of equality in American democracy is antithetical to the concept of individual differences in intelligence. Third, even among those persons who prize intelligence, who believe in individual differences and favor in principle the appraisal of human intellectual abilities, there is much concern over the character of the tests that have been created and are now used. Fourth, people criticize the ways in which tests are used. In recent studies of deprived school children the major complaint is that slum children are not prepared to do well on the tests because they have had less chance to learn the skills measured by the tests, and no allowance is made for this. Let us look further into these four matters.

Self-Esteem

Almost all personality theorists note the fundamental importance of the person's self-esteem as a source of inner peace and happiness. How, then, is an individual to deal with the fact that he may be less endowed with intelligence than his friend, or his father, or his brother or sister, a fact that is made more evident by the use of intelligence tests.

Different actions can be taken by those for whom comparison with others in terms of intelligence might lead to injured self-esteem. One is to deride the significance of intelligence, and in reaction, emphasize the importance of other, nonintellectual characteristics. Another is to defend against the information about one's intelligence in subtle ways

so that information favorable to one's views of his abilities is accepted and derogatory information is screened out. In such an instance one might deny the worth and validity of intelligence tests, and even react against the use of tests themselves, because the information received is injurious to the self-image. Or still another device for adjustment is to use well-selected reference groups, that is, to select for social comparison those groups where the distribution of intelligence permits the individual to see himself as above average, and to keep his level of aspiration trimmed down to membership in groups where his view of his own relative intelligence can give him satisfaction.

There is, of course, no necessity for an individual to evaluate himself in terms of intellectual ability. It may be that some people really do not concern themselves much with this, that it is not a salient personal characteristic for many. Man does not care much about being classified along dimensions that have little importance to him. He may not be at all concerned about his ability as a chess or football player, while his standing in a golf tournament may be of consuming interest; he accepts suits that fit him, glasses and hearing aids as needed in most cases, special foods to suit bodily needs, medical treatment in terms of his peculiar ills, housing in terms of his ability to pay, and so on. Man was not always as much concerned as some are today with intelligence, and many still do not find this an important characteristic. In the early days it might be courage or skill in arms during martial conflict that was prized. On the frontier it was power, endurance, and toughness of fiber. Among the early Christians it was the ability to endure criticism, calumny, and even death. The social criteria by which one measures his own adequacy change historically and cross-culturally. Intelligence like other characteristics waxes and wanes in significance as does one's physical size, predestination, or honesty.

Still, it is true that measured intelligence today is of higher significance than ever before. Measures of intellectual ability (grades, test scores, and so forth) are substituted increasingly for religion, or racial or national origin, or sex, or strength, or inherited wealth, or political power, as the attribute that opens the channels to achievement—that provides opportunities to the individual for education, advanced training, and higher occupational status. In our society there is an increasing value placed on measured intelligence as the basis on which rewards will be allocated, in preference to other characteristics such as honesty, creativity, altruism, leadership, and dramatic painting, dancing, or gardening skills. What are the long-term consequences, both on the personal and societal levels, that will be produced by this concentration on intelligence?

There always will be, to be sure, individuals who are not troubled by their relative rank on the characteristic of intelligence, because they have other characteristics that they themselves value more, and from

which they derive their positive self-esteem. This strong belief in their own personal value may come from being reared in a family in which each child was viewed as different, unequal, and unique, and hence developed a sense of equal worth. Such a person would recognize that each has his own potential, each can become his own best and distinctive self. Of course, if society, unlike this family, gives prestige and power and wealth as reward for intelligence rather than the characteristics the individual prizes, it will be hard for him to maintain his strong self-esteem in the fact of this situation. It may be as Michael Young has put it in his book, *The Rise of the Meritocracy* (1958), that it is only when society gets individuals to appreciate themselves as individuals, who vary in a thousand ways, are unequal in a thousand ways, and crave knowledge of their own unique selves and evaluate themselves in terms of personal potential, that intelligence can be put in a broader perspective. Meanwhile, the concern continues about measuring intelligence and making decisions based on such measurements as affect an individual's future.

Social Values

When one considers the traditional beliefs and values of contrasting cultures and historical periods, he senses almost at once that a fundamental social, ethical, sometimes legal issue is what the society is to do about differences between men that are recognizably associated with their genetic endowment (Gardner, 1961). In a strict equalitarian value system, men may be viewed as equal and individual differences of significant kinds and characteristics such as strength or intelligence are compensated for by differential treatment, by handicapping, so to speak, so that ideally everyone is brought to the same position and opportunity in the society. In an aristocratic society one is given money, power, and prestige, according to his parents' or early ancestors' social position, and the aristocracy is maintained through in-group marriage. In such a society a doctrine of opening avenues of achievement according to intelligence, rather than social inheritance, has been viewed as a serious challenge to the established social order, and indeed, the clash between these views is familiar from the early history of the United States. There is a third value system, of course, in which the good is viewed as open competition between different types and levels of ability, with each generation of talented persons being permitted to rise to the top, only to be replaced by others having no necessary blood relationship to them. In this society each person is viewed as having the right to move ahead and to find his place in society according to his talents.

But no set of cultural values is clear and coherent on this matter. Each society's solution seems to be filled with conflict and cross-currents of ideology, so that one point of view is exercised on one occasion or in

one social context, or instance of decision, and another point of view in another setting. One may believe that no man is better than another, and yet at the same time recognize that persons are different and that each one has the right to express his individual talents, and, moreover, that those with greater abilities have a legitimate right to rise to the top in the society (as long as they do not claim that they are better than another). Or a person may believe that success in life is a result of ambition and hard work (perhaps with a bit of luck along the way) and still hold the belief that it is those who are smart who really get ahead in life. One may have an equalitarian point of view where business is concerned, an elitist point of view where education and opportunity is concerned, and yet hold to an aristocratic view where matters of estate and property are involved.

Standardized tests of ability, especially intelligence tests, engage the attention of those concerned about intellectual differences because tests make these individual differences more visible, make them evident, make them measurable. Thus, tests work to sharpen these personal and ideological concerns and conflicts because tests make it possible to distinguish more accurately between individuals, more openly and concretely, in terms of intelligence. So, what one thinks about individual differences in intelligence and how he feels about them and how he thinks society should deal with such differences spills over to influence his attitudes toward standardized tests of intelligence. For example, one would expect that in the extreme equalitarian or the aristocratic culture where the values work to obscure differences in individual intelligence, the climate would be less favorable to the use of intelligence tests. On the other hand, where open competition is the organizing principle, tests themselves might well be viewed favorably since they can be used to identify the talented and help to make it possible to provide for the full development of these persons. In like manner, those who have a personal concern about intelligence, for whom it is salient, for whom it is a desired characteristic, a prized component of personality, would have different and likely more favorable attitudes toward tests than those persons who belittle or ignore differences between men in this aspect of personality.

Criticisms of Tests

There is still a third basic source of concern about standardized tests which is shared by those of varying ideological persuasions and personal values, namely, the character of standardized ability tests themselves. Continuing questioning takes place about whether tests are accurate in what they measure, about whether they do provide stable and reliable appraisals of the persons being tested. But the definition of intelligence implicit in current tests is even more fundamental and far reaching in consequence. It has been argued, for example, that standardized tests

foster conformity while penalizing those with unusual or creative talents. Do these standardized tests available for measurement of abilities have a narrow range of application, selecting, so to speak, only a small portion of talent (say, verbal fluency) from the broader spectrum of human abilities which might include imagination, creativity, or artistic gifts; with the consequence that the recruitment, selection, and training of persons in the United States favors a group with only a single type of ability?

A different type of concern about tests is that they orient a society toward comparisons between individuals on test scores, and present a so-called normal range of distribution of scores, so that the frame of reference, the standards, by which members of society are judged tend to be fixed in terms of the range of abilities of its members at a given point in history. The challenge is that we may not have any valid idea of the true limits of human abilities, given optimum development, and by viewing scores on existing tests as a normal range, we severely restrict our aspirations about the heights to which human intelligence might be brought. Perhaps genius within the current frame of reference could be made common rather than exceptional if the conditions of birth and child care were changed to accord with some as yet not fully realized maximizing course of development.

The Misuse of Tests

Some of the most recent criticism of intelligence tests stresses their misuse. The criticism points to the fact that children have differential access to acquisition of the skills measured by standardized tests (Kohl, 1967). Contrasting school policies regarding "practicing" for tests, as well as general differences in the quality of education offered by slum and suburban schools, are currently under fire from those who may or may not find fault with tests per se, but recognize that test performance is now an important factor in determining a child's life chances. It now is widely understood that Negro children, especially, show a deficit in standardized test performances which is a direct consequence of the different cultural environment in which they live. The increasingly widespread use of tests has undeniably helped to reveal the inequities of our educational system in providing the basic skills required to "make it" in our society at present. It is perhaps inevitable that some of the anger about these inequities is directed at the tests themselves.

For these and other reasons hostility exists and concomitant with the rise of testing in American society, there has been an increase in hostility toward the use of standardized ability tests. (One is tempted to suggest that one clear social consequence of testing is the emergence of a vigorous anti-testing attitude.) This criticism has found powerful spokesmen (Hoffman, 1962; and Black, 1963), and has led to congres-

sional investigations and suggested "corrective" legislation. But these negative views of standardized ability tests have been countered by positive statements pointing out the value of tests in many areas of life, including the opening of opportunities for advancement on the basis of merit to members of minority groups who might otherwise be excluded (Brim, 1965). In a recent congressional testimony it was stated that: "Psychological tests have made an enoromous positive contribution toward securing human rights for all human beings. . . . When a member of a minority group takes the same test as everyone else, he may be judged on a much better basis than if he were to be interviewed personally by someone who might be biased . . . it is sometimes overlooked that they (tests) have helped women and old people and sometimes young people and sometimes handicapped people, who are able to demonstrate through standardized tests that they can do a job."[1]

The use of tests in identifying and calling attention to highly able children of middle or lower social class background whose families do not have the resources to provide them with educational opportunities that match their abilities has been a powerful argument used by those in favor of standardized ability tests, who say that without such measures much of the nation's talent would be wasted through ignorance, and the potential for individual fulfillment in many different lives never realized.

The critics of testing have, implicitly, tended to evaluate the social consequences of standardized testing in terms of absolute standards. They have considered the effects of testing with reference to some set or sets of ideally desirable criteria and have found in several instances serious faults and deficiencies. The proponents of testing have, implicitly, tended to evaluate the consequences of testing in relative terms. They have defended testing by pointing to the benefits derived from using tests (in terms of such criteria as objectivity, efficiency, validity, social equity, and so forth) in comparison with selection based on other traditional criteria like sex, age, or skin color.

If we regard the function of standardized testing as being part of a decision-making system, a system whose purpose it is to guide in the allocation of educational and/or occupational opportunities and advancements, then it would seem that evaluations of the social consequences of testing must be made in relative terms. The issue is not of deciding to continue to use tests or to discard them. The task of providing education and opportunity for individuals with varying types and degrees of talent remains a continuing one, whether or not tests are used to accomplish it. And it may well be that the consequences of eliminating testing, and

[1] Hearings of the House Special Subcommittee on Invasion of Privacy of the Committee on Government Operations, September 23, 1965. See *American Psychologist*, vol. 21, May, 1966.

presumably substituting some other decision-making procedure, would be much more serious and socially unjust than are the present defects of testing. Thus, while our society may not be about to discard the use of tests, we are in no way excused from the obligation to correct the present defects in tests and in their mode of use.

It may be that the heightened concern of the past few years marks a historically high point of interest by the public in standardized intelligence testing, and that these inquiries will lead to satisfactory resolutions of the issues involved by the public and the relevant professions. More likely, though, is the possibility that debate and discussion about differences between men in intelligence, the measurement of these differences, and what society is to do about them, will continue to exist because these questions engage some of the most fundamental American democratic beliefs about equality and opportunity, and some of the most basic components of a person's self-esteem.

ANALYSES OF AMERICAN BELIEFS AND ATTITUDES

At present, as we move into the last third of the twentieth century, we find in the United States that of its nearly 200 million citizens, on any day, say at 10 o'clock on a Tuesday morning, over 50 million Americans are in elementary school, secondary school, or college, with 12 million of these being secondary school students. In the series of studies on consequences of testing, of which this volume is one, we have tried to look at the persons caught up in this educational system, whether counselors, teachers, test producers, or school children. Here our primary concern is with the experiences and beliefs and attitudes of the secondary school population. Among these students, and their families, there are many for whom test-measured intelligence is not of particular value; many persons prize other achievements, whether biological or cultural, and yet find themselves and their family members caught up in the enlarging practice of heeding differences in intelligence, and of organizing the school system and, indeed, the larger society in these terms. The impact of this experience on some may be beneficial to their personal lives and perhaps a benefit to society in some different sense and yet for others the confrontation with standardized tests and their consequences may be confusing, harmful, antagonizing, and not good for society in some other sense. What we seek to do in this volume is to tell the story, as best we can, of how secondary school students feel about intelligence, about standardized tests, and their uses. A subsidiary investigation of American adult attitudes and beliefs is also reported, and a comparison made of the national sample of adults with the national sample of American students, in Appendix C.

The present study is primarily descriptive in the sense that it is one of

the first systematic attempts to measure aspects of American public opinion about intelligence and intelligence testing. The volume is designed as a sourcebook for educators, teachers, and school administrators. It is explicitly not a sociological document in the sense of an analytic study of the intelligence-testing process. Indeed, we tried to avoid second-order and other causal analyses, except where methodological considerations required further analysis. In general, then, this volume presents a description of American secondary school students' attitudes toward intelligence and intelligence tests. It attempts to refine these descriptions, however, by also presenting the attitude results in terms of social background characteristics (for example, sex, social class, and so forth), experience variables, and selected personality factors. Interpretive comments have been kept to a minimum.

It seems to us that this book is best read if each chapter is viewed as an independent essay with supporting data on one facet of American beliefs and attitudes about intelligence. The discrete findings will, in many cases, take on added significance if the reader places them into the current social context of a dramatically changing American educational system. The topics covered include experiences with tests, beliefs about the genetic nature and stability of intelligence, beliefs about accuracy of tests and the importance of intelligence; interest in getting feedback from test performance, that is, obtaining test results, self-estimates of intelligence, attitudes about ability grouping, and finally about the fairness of using test scores to make decisions about people. These components of an individual's set of beliefs and attitudes about intelligence are not all of a piece; they do not hang together in a simple coherent manner, nor are the sources of variation in them always the same. We have chosen to treat each of these as a separate issue, with each chapter being self-contained insofar as we can make it with respect to assumptions, hypotheses, and analyses. Any particular reader may be more interested in certain chapters than others because of his intellectual or professional concerns. Although we do not attempt systematic generalization about attitudes and beliefs about intelligence on the one hand, and social and personality characteristics on the other, across the different chapters, it will be apparent that certain clusters of characteristics or relationships, certain profiles of types of persons holding certain types of beliefs, emerge as we move from one chapter to the next and we do call attention to these in a general way at the appropriate time.

In the first part of each of the subsequent chapters the attitude and belief items that are the focus of the chapter are described and information about the range of opinion and the central tendencies of the population is discussed. As we describe more fully later on, we have three independent groups of students enrolled in three different types of school systems: (1) the American public school system (a national sample),

(2) a number of parochial schools, (3) certain select private secondary schools. Each chapter presents separately the distribution of attitudes and beliefs for these three types of American students.

Each chapter then considers the relationships between the several opinion items (where the chapter deals with more than one) that are the focus of the analysis. In this way, we attempt to clarify the meaning of the underlying characteristic, belief, or attitude we consider to be measured by the set of items. It is always possible that a single item can be interpreted by respondents in a manner that has differed from the intentions of the social scientists, and examination of the relationships between a number of similar items often allows the investigators to understand better the meaning of the individual items, their aspects in common, and the differences from each other.

We then move ahead in each chapter to examine the relationship between attitudes and beliefs and a number of social background and personality characteristics. Our assumption is that a person's views of intelligence testing are the product of interaction between a large number of influences, which include social group memberships, peer relationships, school environment, past experience with tests, motivational characteristics, value orientations, and so on. Thus, each chapter focuses on one significant belief or attitude, or a cluster of items related to such a dimension, describes the nature of this, how it is distributed in the American student population, and attempts to show the kinds of persons who hold one or another position on this attitude or belief dimension.

THE NEED FOR EDUCATIONAL PROGRAMS ABOUT TESTS AND INTELLIGENCE

The results in each chapter reveal general ignorance and misinformation about tests and intelligence, and some sharp inequities in knowledge and experience among different groups in the American population. On the assumption that tests of intelligence will be used increasingly in education, business, and government in the years ahead (see Holmen and Docter, 1969), it is desirable, both on moral and practical grounds, that major national efforts be made to educate the American population about the nature of intelligence and its testing.

We know that for most people intelligence is a valued personal characteristic, and that they are curious about how they compare with others and about the significance of intelligence in their lives. The situation is not unlike that for other characteristics such as athletic prowess or physical attractiveness, or honesty or business acumen and good sense, in that these, too, are facets of the individual selected by his society as important and about which he is curious. But in the case of intelligence tests and intelligence, there is much misinformation and mysticism and

false belief, so that the situation is more like that of mental illness in the days prior to the mental health movement of the past two decades, and like that regarding sex behavior, which only recently has been accepted as a human characteristic suitable for discussion and education in the public schools and medical offices. A similar national educational effort regarding intelligence might bring the facts about it into the open for better understanding and rational adjustment, just as earlier educational efforts have done for mental illness and sex behavior.

Consider first the case of student experiences with tests. The data presented will show that students who score higher in verbal ability, who have higher educational aspirations, who come from better-educated families, who are white, go to private schools, who are male, who are low in fatalism and high in self-esteem, more often report experiences with standardized tests. These data indicate, as we discuss in the relevant chapters, both differential motivation among students to seek out and gain experiences with tests, and also differential access according to frequency of opportunity because of parental background, level of ability, and other similar factors.[2]

The evidence from studies (Cronbach, 1960; Anastasi, 1968) of test-coaching or test-practice suggest that coaching or sheer repetition on the same test does not raise test results by a sufficient amount to make a difference in such matters as college admissions, and likely not in other cases where tests are used. But, "test sophistication," as Anastasi terms it, is another thing. She writes that: "The individual who has had extensive prior experience in taking psychological tests enjoys a certain advantage in test performance over one who is taking his first test" (page 570), and Cronbach notes that: "Some very large gains in score were found in studies where subjects were initially almost completely unfamiliar with objective speeded tests (page 59)."

We find in our data that the inequities in test experience start in elementary school and continue on into secondary school, right up to differing experiences in exposure to college entrance examinations. In very recent years some effort has been made to provide experience with tests on an experimental basis for "culturally deprived" children, and some groups are providing test experience to minority group members where standardized tests are used as a basis of selection for union membership. However, these meritorious efforts seem almost trivial compared to the magnitude of the problem of unequal experience with tests, which is correlated with socioeconomic characteristics and which starts from the earliest school days and becomes exacerbated during the journey through the educational system. Major efforts at the local and

[2] In the Goslin volume (Goslin, 1967, p. 18), for example, school administrators report tests being used more extensively in upper-income level schools and that this difference in practice begins in the elementary schools.

national levels must be launched, preferably during the preschool years, to provide equal experience with standardized tests of intelligence.

Another highly important area in which education is needed is knowledge about one's own intelligence. The majority of our student respondents say they would be interested in learning their intelligence test results, but our data show that many have never received any specific feedback on test results. This feedback of information, in the cases where it does take place, is unevenly distributed in the American population. In the families where the student's intelligence is known in a fairly specific way, the family tends to be better educated, likely to be Jewish, the student is likely to attend a private school, to score well on tests of verbal ability, to have higher educational aspirations, etc.

Chapter 7 in this volume deals with high and low self-estimates of intelligence, in reference to actual measured intelligence, and we find much systematic overestimation and underestimation. Girls, for example, more often underestimate their abilities than do boys, and for lower-class children more often than upper-class children. There is much room for improvement in the accuracy of judgments about one's abilities in this regard. Chapter 8 shows that these same self-estimates of ability are related to the level of educational aspirations of the student, even when we control for more traditional influences on aspirations, such as intelligence or social class background. Thus, we argue that the high and low estimations of one's abilities, correlated with high and low educational aspirations, and doubtless with other aspects of personality where motivation to achieve in intellectual spheres is concerned, may lead, on the one hand, to unnecessary failures because of unrealistic goals and, on the other hand, to a waste of one's talents through lack of knowledge of one's self and failure to set one's sights high enough. It seems to the authors that a humanistic conception of man would hold that each member of society has the right to valid information as to his or her intellectual abilities, to provide a basis for a rational estimate of one's competence, and thus the establishment of reasonable aspirations in those sectors of life where intelligence counts heavily.

Both the general ignorance and the inequities in knowledge about one's own intelligence seem to come primarily from school policies that keep test score information confidential, and in the possession of the school system, rather than communicating such results to the student or his family. It seems that school practice is based on the supposition that information about intelligence may be injurious to a child's self-esteem or motivation or mental health. However, it is shocking and astonishing to find so little solid social research testing this fundamental assumption. One would have expected that there would be a very large and important body of research supporting the current practice; but the fact is we know

very little about the consequences of feedback of information about abilities.[3]

In the meantime, it seems possible that other things contribute to this so-called school policy; for example, one suspects that by keeping the child and parents at arm's length in this matter the school is more easily administered and less time needs to be given to the thorny problem of parents interested in their children's school performance and their future. Moreover, the touchiness on the part of the schools about doing harm to students, and so forth, does not really seem appropriate since, in practice, schools do not hesitate to group students by ability and, in a hundred polite and not-so-polite ways, to let the "non-elites" know where they stand. If a school were to develop a systematic policy of dissemination of test scores, it could replace the irrational, unevaluated, and probably damaging procedures of the schools at the present time in handling differences in intelligence. It would, however, demand that educators face up squarely to the inequities in the educational system that contribute, at least somewhat, to the test performances, and this kind of direct confrontation with the situation is more painful than the current practice, which is not even based on any supporting social research.

At present it seems justified to recommend development of uniform procedures for providing test results, but only by educators who are fully informed and as aware as possible of their own biases. As part of this, teachers who certainly are not sophisticated interpreters of test scores at the present time should be given special training about the subtle ways in which their knowledge of test scores can affect their outlook (Rosenthal and Jacobson, 1968). In the meantime, since we still do not know enough about what effects the provision of information about ability may have on recipients' perceptions of their own intelligence, their aspirations, or their social relationships with parents and peers, more work is needed to formulate confidently a policy for distribution of test results. If more experimentation and research is carried out testing the assumptions about the impact of such information on the test respondent, if efforts are made to experiment with acceptable models of feedback, and if the teaching personnel themselves are better educated about tests and made more aware of their own ambivalences toward intellectual differences, then this issue may be on its way to being resolved.

Better education of school personnel, teachers in particular, about the strengths and weaknesses of standardized tests, and about the weakness of most correlations between intelligence and success in many areas of life,

[3] There is, however, a considerable body of recent research on the impact on student performance of feedback of their test scores to their teachers (for example, Rosenthal and Jacobson, 1968).

together with education of the population generally, especially the less well-educated parents who tend to invest the concept of intelligence and intelligence tests with more importance than they deserve, might go a long way to loosen up the approach of the school system to management of differences in abilities.

The third area in which a national educational program is needed includes attitudes and beliefs about the accuracy of tests, the predictive importance of intelligence test scores, and the rigid way in which ability classifications are used. The results of this study show that the students are likely to overemphasize the accuracy of tests and not to give enough attention to variations that can occur from time to time because of the experience they have in the interim, and because of changes in motivation or test situation from instance to instance. There is also evidence of a substantial overemphasis on the importance of intelligence for achievement and success, in the light of what we know about the low correlations between early tested performance and later school performance.

The social background of the students is linked to the distribution of attitudes and beliefs. Those students who give tests a higher accuracy rating and intelligence a high importance rating come more often from a less well-educated background, as well as score lower on verbal ability tests. This is the saddest part of the picture, for it is these students who probably suffer the most through the inequitable treatment of intelligence differences in the American school system.

We have said earlier that the use of standardized tests opens up avenues of achievement and frees individuals from predestined careers on the basis of their race, religion, sex, or other characteristics. Testing breaks down very old patterns of allocation in society by substituting scientific test information for tradition which makes possible a new allocation system based on talent. Indeed, testing in elementary school and particularly high school and the guidance process in high school, can be viewed as an attempt to rectify mistakes in potential career allocation made by traditions of race or religion or ethnicity or sex, and to change erroneous self-images that arise through social interaction as early as the first and second grade.

Nevertheless, there can be no doubt that the actual use of test results in many schools and other settings is often rigid and at variance with what we know about test reliability and predictive validity. What is needed is provision for continuous appraisal of an individual's performance after he has been allocated to one or another environment: special class in school, a certain college, a particular job. Psychometric theory permits one to appraise the probabilities of subsequent success, but we must not fail to safeguard ourselves and the person being tested from treating the probabilities as certainties. There are many test users

who must be converted from the belief that once they have assigned an individual to a given path in life, their work has ended. There is a continuing responsibility for them and for the person himself to monitor performance and hopefully to have repeated testing situations, to see if the earlier decision still is right.

To summarize, we find a large measure of ignorance and misinformation regarding intelligence and intelligence testing, unequally distributed in the population, with likely undesirable personal and social consequences following from this state of affairs. The sphere of potential impact is broad. At the elementary and secondary school levels some 120,000 institutions with 50 million students, their parents, and over two million teachers, 125,000 school administrators, and 110,000 school board members are daily engaged with the educational enterprise. Differences in intelligence and the use of standardized tests to measure them are of integral importance to these groups, yet in several significant areas much misunderstanding exists. Leaders in the educational institution, in addition to responsible test publishers and major educational testing services, must take the responsibility for a broader national educational program to overcome these deficiencies.

METHODOLOGICAL NOTES

Before we begin our report a few methodological notes are in order. We have not attempted to report all of the information from the national survey of some 10,000 secondary school students, which is the basis of the work reported. The complete survey questionnaire, with response frequencies for all of the items, has been presented in an earlier technical report (Brim, Goslin, Glass and Goldberg, 1965). All item numbers used in the study reported in this volume refer to the items in that questionnaire, presented in the technical report. Sampling procedures and methods of obtaining data are presented in this volume in Appendix A.

In many instances, we have left out of the report descriptions of attitudes or relationships that in our judgment were not important or compelling, or where the information was weak and/or inconsistent. We have tried to avoid being a slave to the output of the computers, and have deliberately selected what seem to be the most fundamental and provocative attitudes and beliefs about intelligence and intelligence tests. The statistics used in this report are simple basic distributions, percentages, and correlations. Where differences in attitudes or beliefs or experiences between types of students, such as the male versus female, or tenth versus twelfth grade are reported, they always are significant at the .01 level or better unless otherwise indicated. On the other hand, we have not, as we said above, reported all of the information on significant differences because with these large numbers many comparisons would be statistically reliable but have little importance.

The tables of data that supplement those presented in the text of this report number more than 200. We have sought to select from the overall body of data those tables that bear on the most important points made in the text. The supplementary tables are too numerous to permit reproducing in print because of the excessive cost.

Individual copies of selected tables are available from the publisher upon request, in an 8½" x 11" reproduced sheet, in connection with research related to the areas of study of this report.

All of the supplementary tables, either singly or in larger numbers, are available upon request from the National Auxiliary Publications Service (NAPS). These tables may be obtained by ordering Document No. NAPS–00476 from the National Auxiliary Publications Service, 22 West 34th Street, New York 10001.

Tables are numbered consecutively within each chapter. The third digit in the table designation refers to the three types of schools as follows: 1, public schools; 2, parochial schools; and 3, private schools.

A second consideration concerns the concept "intelligence." We would be mistaken if we were to assume that members of American society consider intelligence to be that which is measured by standardized tests, or that intelligence tests constitute the only kind of appraisal of abilities that individuals encounter. Different experiences must lead people to have varying conceptions of what intelligence is. In our work we initially tried to define as sharply as possible what we might mean by intelligence, for example, by referring to an actual score on a specific test, but found that this restricted approach was not suitable for our inquiry because many of the respondents did not have this type of experience. Instead, we deliberately left vague the referent of the work "intelligence" in many of the items, letting the respondents read into it their own meanings. Some variability in response to the questions thus reflects varying conceptions of what intelligence means to these respondents.

Our final methodological note is on comparisons between students in the three different types of schools. Clearly, statistical tests of the significance of differences in attitudes and beliefs between school populations are not acceptable because the parochial and private schools were not sampled from their respective universes. We should say that we place our major stock in the public school results because here our respondent population is a sample, and also because about 90 per cent of American secondary school students go to public school. The parochial and private schools involve little more than 10 per cent of the American population. When we call attention to differences between the school types, we do so in reference to large frequency or percentage differences that make it clear that these students in these particular groups of parochial and private schools do differ from each other and from the national sample of public school students. No generalization is intended with reference to

private and parochial schools as a whole. Still, the differences noted strongly suggest important leads for rigorous analysis using representative samples of such schools.

2

The Origins and Stability of Intelligence

QUESTIONS about the origins of intelligence and the nature of intellectual development have long been a subject of considerable controversy among psychologists and educators. A variety of positions have been taken on these issues.[1] Intelligence has been viewed both as an inherited trait, an inborn capacity that individuals possess to varying degrees, and as a characteristic of behavior that primarily reflects the quality of individuals' learning experiences. Similar divergent positions have been taken on the question of intellectual development. It has been described as an essentially biological maturational process—intellectual growth proceeding, much in the manner of neural development, toward a genetically predetermined level—and as an aspect of adaptive, learned behavior—reflecting the individual's continuing experience in coping with his environment. These are, of course, extreme positions. Most social scientists today would affirm that the level of development of intellectual abilities attained by an individual represents the combined, interacting influence of specific genetic and environmental factors.

In this chapter we report student opinions about the origins of intelligence and about the nature of intellectual development. The questions we ask reveal the beliefs of students about the relative importance of genetic and environmental components in intelligence, whether intelligence can be changed over time, and whether their own intelligence is variable.

[1] See Hunt (1961), McNemar (1964), Eckland (1967), and Bressler (1968) for reviews.

We are, of course, also interested in the sources and correlates of these beliefs and attitudes. Beliefs about the inherited origin of intelligence, coupled with the conception of intellectual development as a fixed, predetermined process, may be related to a more general passive and fatalistic orientation toward life. Such a constellation of views could stem from a personal history of repeated failure and would represent an adaptation to this state of affairs. However, it may be that this same constellation of beliefs stems from a history of successful coping with the environment; continual superiority over one's peers may lend an air of innate inevitability to the outcome of these encounters.

We can also easily imagine, however, that belief in the continuity of intellectual development and in the learned origin of intelligence may serve as a source of hope for individuals with a history of failure, while for those individuals who have attained success, holding these views would seem to reflect pride in their personal accomplishments. Thus, we see that similar attitudes and beliefs may be held for different reasons, and in the description and analysis that follows, we attempt to identify the predominant influences.

GENERAL FINDINGS ABOUT THE ORIGINS AND STABILITY OF INTELLIGENCE

Here we present the response distributions for each of the attitude items that will be considered in this chapter. First we shall look at beliefs about the origins of intelligence and the nature of its development.

Changes in Intelligence

Secondary school students were asked to describe their beliefs "about whether an individual's intelligence changes." Six replies were provided as responses to this question, as follows: "Intelligence is more or less fixed at birth and does not change with age," "Intelligence increases only through childhood," "Intelligence increases only through adolescence," "Intelligence increases only through young adulthood," "Intelligence continues to increase as long as one lives," and "I have no opinion."

The distributions of students' opinions on this question are presented in Table 2.1. Clearly very few students adhere to the inborn or genetic, fixed intelligence point of view: only 7 per cent of the public school students believe that intelligence is fixed at birth. The large majority of this group, 87 per cent, believe that intelligence continues to increase throughout life.[2]

Table 2.1 also shows a difference in opinion between respondents en-

[2] Percentages cited in the text are based on the total number of respondents offering an opinion. Except where explicitly indicated, "Don't know" respondents, included in tables, have been removed prior to statistical analysis.

TABLE 2.1 Beliefs about the nature of intellectual development (Item 62): *"Which of the following best describes your belief about whether an individual's intelligence changes?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Intelligence is more or less fixed at birth and does not change with age	7	11	15
Intelligence increases only through:			
Childhood	1	1	1
Adolescence	2	2	2
Young Adulthood	4	5	9
Intelligence continues to increase as long as one lives	87	82	73
TOTAL	101 (4732)	101 (2410)	100 (1088)
No Opinion	11 (577)	8 (214)	9 (101)
No Response	(12)	(12)	(9)

rolled in the three types of school systems. The distribution is less skewed at the "inborn" end of the continuum in the parochial and private schools. In the latter instance, we find that 15 per cent of the respondents believe that intelligence is "fixed at birth" and 73 per cent believe that it "continues to increase" throughout life.

We see that the students' predominant view of intelligence is that it is a characteristic which increases throughout one's life, and thus the most common concept of intelligence involves a continual acquisition of knowledge, more than it does a fixed genetic component. Over the life span this experience yields more, shall we say, "wisdom"—which must be involved in this image of a continual increase. And, given this concept of intelligence, the students are right. It is not only because intelligence is an open and loosely defined concept that this is possible. We see just below that this same view of continual improvement applies to that concept of intelligence measured by standardized tests also.

What Ability Tests Measure

Respondents were asked: "Do you think intelligence (college entrance) tests measure the intelligence a person was born with, or what he has learned?" Eight alternatives were included in the questionnaire as answers to these items. Two of these stress the importance of innate factors: "They measure only inborn intelligence," and "They measure mostly inborn intelligence but learning does make some difference." A third alternative, "They measure inborn intelligence and learning about equally," gives each source equivalent weight, while the fourth and fifth alterna-

tives, "They measure mostly learned knowledge, but inborn intelligence does make some difference," and "They measure only learned knowledge," stress the importance of experiential factors. Of the three remaining alternatives, two ("I have never thought about it and do not know," and "I have thought about this, but have formed no opinion") are essentially "don't know" responses, while the third, "They don't measure intelligence" denies the validity of the tests and cannot be located on the inborn-learned continuum.

Looking at Table 2.2, we see the preponderant view is that intelligence tests measure "mostly learned knowledge" with inborn differences counting only somewhat. This result illustrates the optimistic, relatively open view of the students about the alterability of intelligence test scores.

Table 2.2 compares the response distributions for both the intelligence and college entrance test questions. Among public school students, 61 per cent believe that tests of intelligence measure "mostly" or "only" learned knowledge, while 80 per cent of the public school students believe that the abilities measured by college entrance tests represent knowledge one has learned. This difference in the perception of the relative importance of innate and experiential factors in intelligence and college entrance test scores is quite consistent across the three types of schools. In this case it is likely that the students have things correctly in mind, in that college entrance tests likely require more in the way of skills that the schools have provided. The wide availability of "study guides" for these examinations suggest, too, that the quality of one's performance can be improved and is therefore dependent on learning.

We again find an emphasis on the importance of inborn sources as we move from the public to the parochial and private schools. Whereas only 15 per cent of the public school respondents believe that intelligence tests measure largely inborn intelligence, 22 per cent of the parochial school respondents and 28 per cent of the private school respondents are of this opinion. Let us defer comment about the sources of these differences in opinion distribution between the students in the three kinds of schools until we consider some of the variables that differentiate respondents enrolled in these institutions.

Let us also note the respondents who believe that the tests are *not* measuring intelligence. The proportions of students here are, to be sure, quite small (3 to 6 per cent). Consider, however, that the secondary school enrollment in America comprises approximately 13 million students.[3] Thus, if these percentages are representative of the national average, the number of students who deny the validity, relevance, or perhaps both, of intelligence tests is on the order of several hundred thousand.

[3] Current Population Reports, Bureau of the Census, *Population Characteristics*, "School Enrollment: October, 1965." Series P-20, No. 162, March 24, 1967.

TABLE 2.2 Beliefs about the origins of tested intelligence (Items 122 and 123): *"Do you think intelligence tests (college entrance examinations) measure the intelligence a person is born with or what he has learned?"*

	Secondary School Students					
	Public		*Parochial*		*Private*	
	Intelligence %	*College Entrance %*	*Intelligence %*	*College Entrance %*	*Intelligence %*	*College Entrance %*
Only inborn intelligence	2	1	3	0	2	0
Mostly inborn intelligence, but learning makes some difference	13	4	19	4	26	6
Inborn intelligence and learning about equally	19	13	23	15	26	17
Mostly learned knowledge, but inborn intelligence makes some difference	47	54	41	55	35	57
Only learned knowledge	14	26	11	22	5	15
They don't measure intelligence at all	4	2	3	3	6	5
TOTAL	99 (4349)	100 (4225)	100 (2235)	99 (2247)	100 (1064)	100 (1027)
Don't Know; No Response	18 (972)	21 (1096)	15 (401)	15 (389)	11 (134)	14 (171)

TABLE 2.3 Beliefs about the stability of intelligence test scores (Item 68): *"Given the best conditions of diet, education, intellectual stimulation, etc., it is possible for an average person to raise his intelligence test score* at most *by . . ."*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Almost nothing	9	10	11
About 10 per cent	39	43	38
About 20 per cent	27	25	29
25–50 per cent	17	16	15
More than 50 per cent	7	5	6
TOTAL	101 (2854)	99 (1419)	99 (638)
A percentage I do not know	46 (2452)	46 (1210)	46 (553)
No Response	(15)	(67)	(67)

Stability of Intelligence Test Scores in General

We asked students to speculate about the potentialities for improvement in intelligence test scores—"Given the best conditions of diet, education, intellectual stimulation, etc., it is possible for an average person to raise his intelligence test score at most by"—available under optimal circumstances. Five of the six response alternatives provided describe differing amounts of improvement, ranging from "almost nothing" through "about 20 per cent," to "more than 50 per cent." The sixth alternative response was: "A percentage I do not know."

The distribution of opinion responses to this question is shown in Table 2.3. Note that a large proportion of the respondents in each school (46 per cent) did not attempt to make an estimate in quantitative terms of the degree of improvement possible in intelligence test scores. From the point of view of opinion description, then, our question is a poor one—almost half of the students failed to indicate their position on the dimension that is of interest to us. The question is stated more as a matter of fact than as a matter of opinion, and this may have inhibited tendencies to respond with opinion-reflecting guesses.

With this caution in mind, consider the opinion distribution of those respondents who were willing to estimate the stability of intelligence test scores.

By and large, the respondents are in agreement with the results of research. About two-thirds in each of the school groupings report about 10 or 20 per cent maximum change, which is probably the best estimate of change in test scores reported from environmental effects. (We ex-

TABLE 2.4 Beliefs about the stability of their intelligence test results (Item 121): *"Do you think your scores on intelligence tests have stayed about the same for several years?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
No, they have tended to go down a lot	2	1	1
No, they have tended to go down a little	7	6	6
Yes, they have tended to remain the same	44	48	44
No, they have tended to rise a little	36	36	38
No, they have tended to rise a lot	12	9	11
TOTAL	101 (2972)	100 (1596)	100 (600)
I don't know my intelligence test scores	38 (1991)	36 (927)	46 (532)
I have never taken an intelligence test	5 (253)	2 (58)	3 (34)
No Response	(105)	(55)	(32)

clude here, of course, the cases of recovery in performance of emotionally disturbed children, and similar dramatic instances where test score depression is extreme, as a consequence of emotional or physical disability.) The variability around the modal view is skewed toward the optimistic end, which accords with the beliefs of the students on the two previous items showing us their optimism about the continual growth in intelligence.

Stability of Respondents' Own Test Results

Unlike the preceding item which was rather abstract, hypothetical, and impersonal, another question deals with the perception of change in personal test results. Respondents were asked: "Do you think your scores on intelligence tests have stayed about the same for several years?" Five response alternatives, ranging from "No, they have tended to go down a lot," through "Yes, they have tended to remain the same," to "No, they have tended to rise a lot," specify the presence or absence of perceived stability in the respondents' own own test scores and also indicate the direction and degree of change involved. Two additional response categories—"I don't know my intelligence test scores," and "I have never taken an intelligence test" were also provided. The distribution of answers to this question is presented in Table 2.4.

First note there is a substantial group (about 40 per cent) of respondents who say they do not know their intelligence test scores or have never taken a test and hence cannot answer the question. This corresponds to

the data on information feedback in Chapter 9, where we find that over a third of the parochial school students and almost half of those enrolled in the public and private schools say they have not received any information about test results.[4]

About 60 per cent of the total group of students estimated the nature of changes, if any, in their own intelligence test scores. From 40 to 50 per cent of this group report their scores tended to remain the same, and from 45 to 50 per cent report "they have tended to rise a little" or "they have tended to rise a lot." Thus, the good majority of reporting students state that their scores have either been increasing or remained stable over the years.

We find almost no variation between the three types of schools; this was also true for the preceding item concerning potential improvement and test scores in general. Although there were differences in opinion between respondents in the three types of schools about the origins of intelligence—private school students giving relatively less weight to the importance of learning and experience—these do not carry over into the domain of beliefs about the stability of tested intelligence.

The general dynamic, positive tenor of student opinions is given some dramatic support by responses to two other items which asked respondents to evaluate their own intelligence in comparison with their father's intelligence (see Table 2.5). The first question, asking for a comparison at the present time, shows that the majority of our secondary school students see themselves at present as less intelligent than their fathers. The second question, asking for a comparison projected ten years in the future, shows that the majority of students feel that they will be *as* or *more* intelligent than their fathers at that time.

Interrelationships Between Beliefs About the Origins and Stability of Intelligence

These four attitude and belief items just described above are related to each other in the following ways. Those students who believe that there is little change or intellectual growth after birth are also those tending to see intelligence tests as measuring largely inborn abilities. They also do not believe there is much potentiality for improvement in intelligence test scores. Thus, these three beliefs hang together in the way one would expect. Still, while the association between these variables is significant at well beyond the .001 level, the relationship is not so high that we should always expect to find the same social and personality correlates for the different beliefs.

[4] The data are not directly comparable between the two chapters because Item 121, the basis of Table 2.4, would technically require that a student have had more than one intelligence test and have received specific results (scores) before he could answer it.

TABLE 2.5 Beliefs about the stability of their intelligence test results (Items 24 and 25): *"How do you think you now compare with your father in intelligence?"* and *"How do you think you will compare with him in ten years?"*

	Secondary School Students					
	Public		*Parochial*		*Private*	
Time of Comparison:	*Now* %	*In Ten Years* %	*Now* %	*In Ten Years* %	*Now* %	*In Ten Years* %
I am (will be):						
Much higher	6	28	4	22	1	8
Somewhat higher	22	40	17	39	8	24
About the same	22	22	20	26	25	39
Somewhat lower	34	9	38	12	39	26
Much lower	15	1	21	1	27	3
TOTAL	99	100	100	100	100	100
	(3544)	(4001)	(1788)	(1944)	(879)	(833)
Don't Know; Not Applicable	33	25	31	26	26	30
	(1721)	(1306)	(795)	(692)	(304)	(360)

Where the students' attitudes about changes in their own test results are concerned, we find a sharp difference: this item is not related in any significant way to the other three more general attitude items. Holding any one of the following beliefs—that intellectual development is fixed at birth, that tests of intelligence measure abilities that are predominantly inborn in origin, or that there is little chance to effect improvements in intelligence test scores does not seem to prevent the respondent from saying that his own test scores have, in fact, been improving over the years. An individual's attitude toward his own intelligence test score changes stands apart from his beliefs about the origins and stability of intelligence. We get more insight later into why one's feelings about his own intelligence differ from his statements about matters in general and, as one might expect, they involve questions of self-esteem and personal involvement.

SOCIAL BACKGROUND CHARACTERISTICS

In each instance of beliefs and attitudes about intelligence, we are interested not just in the general distribution among the secondary school population, but in how these experiences are associated with certain characteristics such as being male or female, or being high or low in self-confidence, or in measured intelligence, or in other personality characteristics; or coming from a family where the father is well-educated. These independent variables are described in Appendix B. It will be noted that they fall into three main groups—those of social background

characteristics; reading test scores and educational aspirations; and personality characteristics.[5]

We begin our examination of the correlates of different opinions about the origins and stability of intelligence by considering some characteristics of the respondents' social background. The five independent variables that we shall treat here are: father's education, sex, grade level, race, and religious reference.

Father's Education

Paternal educational attainment is an important component of traditional indicators of social position or status (Warner and Lunt, 1941; Hollingshead and Redlich, 1958), and is evidently a major correlate of attitudes toward intelligence. Our measure of father's education is based on respondents' reports and is fully described in Appendix B. For the purposes of statistical analysis we have reduced the original seven levels of educational attainment to a more manageable four.

1. *Changes in Intelligence.* The relationship between father's education and beliefs about the nature of intellectual development is shown in Table 2.6.1. Further support for this relationship can be found in Tables 2.6.2 and 2.6.3, two of the supplementary tables that we have deposited, as indicated on page 16, with the National Auxiliary Publications Service (NAPS). We can see that the belief that "intelligence continues to increase as long as one lives" is most common among the lower levels of father's education and, correspondingly, the popularity of the view that intelligence is "fixed at birth" increases as we move toward higher levels of this variable. In the public schools, only 6 per cent of the respondents whose fathers did not complete high school feel that intellectual development is predetermined from birth, while 12 per cent of the respondents with college graduate fathers were of this opinion. In the parochial and private schools, these proportions were 8 per cent and 14 per cent, and 10 per cent and 16 per cent, respectively.

The direction and magnitude of the relationship between father's education and opinion about the nature of intellectual development is thus quite consistent across the three types of school systems: the continuous growth view is predominant in all instances, but the fixed intelligence view does become more frequent at the highest educational level. Let us note, however, that the level of statistical significance attached to the association between these variables varies from beyond the .001 and .01 levels of confidence in the public and parochial schools to a nonsignificant probability greater than the .05 level in the private schools. (This variation in significance level is due, in part, to the progressively smaller numbers of respondents comprising our public, parochial, and private

[5] The reader may wish to review Appendix B at this point in order to have these background characteristics in mind as we move ahead with the analyses.

TABLE 2.6.1 Beliefs about the nature of intellectual development (Item 62) by social background variables

	Public School Students				
	Intelligence:				
	Is Fixed at Birth %	*Increases Through Part of Life* %	*Continues to Increase Throughout Life* %	*Total* % (*f*)	*No Opinion* % (*f*)
Father's Education: ($p<.001$)*					
Less than 12th Grade	6	6	88	100 (2293)	12 (302)
High School Graduate	7	5	87	99 (1336)	11 (157)
Some College	8	8	85	101 (527)	8 (47)
College or More	12	6	81	99 (493)	10 (55)
Sex: ($p<.001$)					
Male	8	8	84	100 (2119)	13 (309)
Female	6	5	89	100 (2588)	9 (265)
Age: ($p<.05$)					
10th Grade	6	6	87	99 (2679)	12 (350)
12th Grade	8	6	85	99 (2028)	10 (224)
Race: ($p<.001$)					
White	6	6	87	99 (4306)	11 (508)
Negro	15	7	78	100 (295)	13 (45)
Religion: ($p<.001$)					
Protestant	7	5	88	100 (2452)	9 (235)
Catholic	5	7	88	100 (1021)	11 (128)
Jewish	13	8	78	99 (179)	10 (19)

* Throughout this book, whenever probability values based on Chi-squared tests are reported they are based on two-tailed tests.

school samples. An additional factor that is operative in the case of the private school data is the extremely skewed distribution of the independent variable, father's education.) Still, the fact of replicating this finding across three independent groups gives added confidence that the relationship is one worthy of consideration.

2. *What Ability Tests Measure.* We turn our attention now to the relationship between father's education and beliefs about the origins of tested intelligence. The general form of the data parallels that just described for opinion about the nature of intellectual development (see Table 2.7.1; also Tables 2.7.2–2.7.3 deposited with the NAPS). Respondents whose fathers have higher levels of education place greater emphasis on the importance of inborn abilities as determinants of the quality of intelligence test performance, while respondents with fathers of lower educational attainment place greater emphasis on the contribution of learned knowledge. Again, these relationships were significant ($p<.001$) only in the public and parochial schools; a strong but nonsignificant trend in this direction is presented in the data of the private school respondents.

3. *Stability of Intelligence Test Scores in General.* The results described in the two preceding sections suggest that respondents of lower paternal educational backgrounds will be most hopeful about the potentiality for significant improvements in intelligence test scores. Such improvement might be seen as the key to a college education and the attainment of a better social position. Our data do not provide much support for this expectation, although there is one marginally significant finding ($p<.05$) that is consistent with it. As we can see in Table 2.8.1 and in Tables 2.8.2–2.8.3 deposited with the NAPS, more of the lowest than of the highest father's education respondents in the public schools (54 vs. 46 per cent) feel that it is possible to achieve substantial improvement—increases of 20 per cent and more—in intelligence test scores.

4. *Stability of Respondents' Own Test Results.* Students' perception of changes in their own intelligence test scores was not significantly related to father's education (see Table 2.9.1; also Tables 2.9.2–2.9.3 deposited with the NAPS). This is consistent with its independence from the other three beliefs, noted earlier.

We conclude, then, that more respondents from the lower paternal education strata believe that intelligence tests measure learned abilities and they regard intellectual development as a continuing, life-long process. Respondents from the higher paternal education strata are seen to place greater emphasis on the contribution of inborn factors to the origins and development of intelligence. Opinions about the stability of one's own intelligence were not, on the other hand, appreciably related to our educational measure of social status.

TABLE 2.7.1 Beliefs about the origins of tested intelligence (Item 122) by social background variables

	Public School Students					
	Intelligence tests measure:					
	Only or Mostly Inborn Intelligence %	*Inborn Intelligence & Learning Equally* %	*Only or Mostly Learned Intelligence* %	*Don't Measure Intelligence* %	*Total* % (f)	*No Opinion* % (f)
Father's Education: ($p < .001$)						
Less than 12th Grade	15	19	62	4	100 (2106)	19 (477)
High School Graduate	14	20	61	4	99 (1217)	18 (273)
Some College	17	15	63	4	99 (479)	16 (93)
College or More	19	23	53	4	99 (472)	14 (76)
Sex: ($p < .05$)						
Male	16	19	60	5	100 (2020)	16 (394)
Female	14	20	62	3	99 (2305)	19 (541)
Age: (n.s.)						
10th Grade	15	19	62	4	100 (2441)	19 (579)
12th Grade	16	20	60	4	100 (1884)	16 (356)
Race: ($p < .001$)						
White	14	20	62	4	100 (3953)	18 (846)
Negro	31	18	49	2	100 (273)	18 (62)
Religion: ($p < .001$)						
Protestant	14	21	62	3	100 (2265)	16 (416)
Catholic	15	19	61	5	100 (926)	19 (216)
Jewish	20	17	55	8	101 (170)	14 (28)

Sex

A second characteristic of respondents that we consider is their sex. Although we had little reason on *a priori* grounds to expect that differences in beliefs would be associated with sex, the data for all four items were analyzed as a matter of course in each school type, and two differences should be reported.

1. *Changes in Intelligence.* Fewer males than females in all three types of schools feel that intelligence continues to increase throughout one's life while correspondingly more males feel that intellectual development is restricted to the early portion of an individual's life span. This relationship between sex and opinion is significant ($p<.001$) for each of the three school types.

2. *What Ability Tests Measure.* The relationships between sex of respondent and opinion about the relative importance of inborn and learned abilities as determinants of the quality of intelligence test performance are presented in Table 2.7.1 and in Tables 2.7.2–2.7.3 deposited with the NAPS. Clearly, sex does not differentiate opinion here.

3. *Stability of Intelligence Test Scores in General.* No significant relationships were found between respondents' sex and beliefs about the likelihood of improvement in intelligence test scores.

4. *Stability of Respondents' Own Test Results.* In the public schools, the proportion of males reporting their own test scores had increased exceeds that of females (50 vs. 45 per cent), while more females (47 vs. 41 per cent) than male respondents in these schools indicate that their scores have remained at the same level. This tendency for male respondents to report more improvement holds in each of the three school groups (see Table 2.9.1; also Tables 2.9.2–2.9.3 deposited with the NAPS). Only the data for the public schools, however, approach significance at the .02 level of confidence.

Grade Level

There were no major differences between tenth and twelfth-grade respondents in regard to beliefs about the origins of intelligence. But some important relationships do emerge when we consider test score stability. In the public schools (see Table 2.8.1), it is the tenth-grade students who are most optimistic about the potentiality for improvement in intelligence test scores. More of these younger respondents (54 vs. 48 per cent) feel that given optimal conditions, substantial improvements in scores are quite possible ($p<.01$). Grade differences in opinion disappear completely in the parochial school group, while among the private school respondents the direction of this grade relationship becomes completely reversed. In this latter group fewer tenth than twelfth-grade students (46 vs. 56 per cent) feel that substantial improvement in intelligence test scores is possible.

TABLE 2.8.1 Beliefs about the stability of intelligence test scores (Item 68) by social background variables

	Public School Students					
	Intelligence test scores can be raised at most by:					
	0 to 10%	*20 to 50%*	*Total*		*Don't Know*	
	%	%	%	(f)	%	(f)
Father's Education: ($p < .05$)						
Less than 12th Grade	46	54	100	(1393)	46	(1202)
High School Graduate	50	50	100	(806)	46	(686)
Some College	51	49	100	(295)	49	(278)
College or More	54	46	100	(317)	42	(230)
Sex: (n.s.)						
Male	50	50	100	(1337)	45	(1092)
Female	47	53	100	(1498)	47	(1352)
Age: ($p < .01$)						
10th Grade	46	54	100	(1657)	45	(1373)
12th Grade	52	48	100	(1177)	48	(1071)
Race: ($p < .02$)						
White	49	51	100	(2561)	47	(2249)
Negro	40	60	100	(201)	41	(140)
Religion: (n.s.)						
Protestant	48	52	100	(1480)	45	(1204)
Catholic	53	47	100	(599)	48	(550)
Jewish	55	45	100	(118)	40	(79)

The same is true for perception of one's own intelligence test performance. The results presented in Table 2.9.1 show that in the public schools more of the tenth than twelfth-grade respondents (50 vs. 44 per cent) believe that their test scores have been improving ($p<.02$). In the parochial schools and private schools, the reverse again is true. Thus, the relationship between grade level and opinion about the stability of intelligence test scores seems dependent on the type of school or school population.

Why should these divergent views about stability of test scores exist? What is it about the educational experiences or personal characteristics of the students in these schools that suggests the declining belief in self-improvement, the constriction of opportunities for growth, for the public school senior, in contrast with seniors in parochial and private schools?

This question seemed important enough to pursue in more detail, with the initial or guiding hypothesis that in the public schools we would find that average and superior students from lower socioeconomic backgrounds tend to experience a "cooling out" of their optimism about the possibility of continuing intellectual advance. Consequently for the parochial and public school groups detailed analyses were made, with

TABLE 2.9.1 Beliefs about the stability of their intelligence test results (Item 121) by social background variables

	Public School Students			
	Intelligence scores tend to:			
	Go Down %	*Remain the Same* %	*Rise* %	*Total* % (f)
Father's Education: (n.s.)				
Less than 12th Grade	9	42	49	100 (1398)
High School Graduate	9	45	46	100 (876)
Some College	7	47	46	100 (341)
College or More	7	48	45	100 (309)
Sex: ($p < .02$)				
Male	9	41	50	100 (1427)
Female	9	47	45	101 (1524)
Age: ($p < .02$)				
10th Grade	8	42	50	100 (1620)
12th Grade	9	47	44	100 (1331)
Race: ($p < .001$)				
White	8	45	46	99 (2723)
Negro	6	22	72	100 (162)
Religion: ($p < .05$)				
Protestant	7	48	45	100 (1602)
Catholic	10	42	47	99 (623)
Jewish	11	44	45	100 (120)

a simultaneous application of controls for respondent's fathers' education and reading test scores. (Tables 2.9.4–2.9.5 present the data for beliefs about the stability of intelligence test scores in general, while Tables 2.9.6–2.9.11, deposited with the NAPS, present the data for beliefs about the stability of their own intelligence test results.)

With regard to the first, the pattern in the parochial school students is one of a general trend in nearly all subgroups to maintain their optimism for improvement from the tenth grade to the twelfth grade, or to shift to a "Don't Know" response. Where one's own test scores are concerned, in the change from tenth to twelfth grades, the shift is upward; that is, the percentage of students who say their test scores have tended to rise increases, on the whole, without respect to reading test score and/or father's educational background.

The public school students, as we supposed, yield a quite different picture. Where test score changes in general are concerned, the students from the higher levels of father's education, that is, high school graduate and more, are more likely to give "Don't Know" responses when compared with the tenth-grade counterparts, representing a slight shift in this direction similar to the parochial school students. But the twelfth-grade public school students from the father's educational level of "less than high school graduate," who comprise half of the public high school

sample, are likely to give more pessimistic responses than their tenth-grade counterparts at all levels of reading test scores. Beyond this, it is especially within the average and high reading test score groups of students from this low father's educational background where the change takes place. In the tenth grade this group is slightly more optimistic about the possibility of improvement in intelligence test scores than are those from higher father's educational background, given the same reading test score, but by the time they are in the twelfth grade this subgroup is the least optimistic of all.

And, this same pattern holds where students' perceptions of changes in their own intelligence test results are concerned. At the upper educational levels, the changes are parallel to those in the parochial schools. But for students coming from a lower educational background, the low reading test scorers show relatively little change in tenth and twelfth grade, the average reading test scorer shows a slightly lower level of optimism, and the high reading test scorers from this background end up in the twelfth grade with a sharply lower estimate of improvement in their test scores, and considerably lower than comparable high reading test scorers from a high father's educational background.

To sum up, the additional analyses show that the average, and especially the high ability students, from a middle, or especially a lower socioeconomic background, who attend public high school encounter some experience in the passage from the tenth to twelfth grade which markedly reduces their optimism about intellectual improvement in general, and their own in particular. This process, whatever it is, and whether it stems from home or from school or both, does not characterize students from a higher socioeconomic background, nor, generally, those similar students who attend parochial schools.

Race[6]

The bearing of the race of our respondents on attitudes toward the origins and stability of intelligence is an interesting one. As we pointed out, there is consistency within this opinion domain: respondents who think of intelligence as an inborn ability also regard intelligence test scores as a relatively fixed quantity that cannot be much changed. The data that we shall describe for Negro respondents deviate from this pattern of relationships. We find that Negro respondents view intelligence and tests as a reflection of inborn abilities, but they do not tend to view

[6] Our discussion here does not consider the small number of Oriental respondents present in each sample. It also does not include a larger number of students whose response, "I prefer not to answer this question" prevented racial classification. The number of Negro respondents in the private school (N=11) was too small to make any kind of meaningful comparisons. Interpretation of race differences among parochial school students is extremely hazardous for this same reason.

TABLE 2.9.4 Beliefs about the stability of intelligence test results (Item 68) by grade, father's education, and reading test score

	Public School Students			
	Intelligence test scores can be raised at most by:			
Father's Education:	*0 to 10%* %	*20 to 50%* %	*Don't Know* %	*Total* % (*f*)
	(*Low Reading Test Score*)			
Less than 12th Grade				
10th Grade	22	32	46	100 (490)
12th Grade	27	27	46	100 (428)
High School Graduate				
10th Grade	28	29	43	100 (227)
12th Grade	23	29	48	100 (181)
More than High School				
10th Grade	22	39	39	100 (106)
12th Grade	33	14	53	100 (79)
	(*Average Reading Test Score*)			
Less than 12th Grade				
10th Grade	22	30	48	100 (502)
12th Grade	29	27	44	100 (339)
High School Graduate				
10th Grade	24	29	47	100 (320)
12th Grade	23	26	51	100 (195)
More than High School				
10th Grade	28	28	44	100 (209)
12th Grade	24	19	57	100 (134)
	(*High Reading Test Score*)			
Less than 12th Grade				
10th Grade	23	29	48	100 (336)
12th Grade	34	18	48	100 (216)
High School Graduate				
10th Grade	32	24	44	100 (279)
12th Grade	32	21	47	100 (216)
More than High School				
10th Grade	31	28	41	100 (332)
12th Grade	31	23	46	100 (233)

intelligence test scores as stable, being considerably more optimistic about the chances for improving scores than white respondents.

1. *Changes in Intelligence.* The data presented in Table 2.6.1 show that Negro respondents' opinions about the nature of intellectual development differ sharply from those of white respondents ($p<.001$). More Negro than white students in the public schools feel that intelligence is fixed at birth (15 vs. 7 per cent), while correspondingly fewer Negro respondents describe intelligence as continuing to increase throughout

TABLE 2.9.5 Beliefs about the stability of intelligence test results (Item 68) by grade, father's education, and reading test score

	Parochial School Students			
	Intelligence test scores can be raised at most by:			
Father's Education:	*0 to 10%* %	*20 to 50%* %	*Don't Know* %	*Total* % (*f*)
	(*Low Reading Test Score*)			
Less than 12th Grade				
10th Grade	19	32	49	100 (67)
12th Grade	30	19	51	100 (94)
High School Graduate				
10th Grade	28	33	39	100 (71)
12th Grade	23	19	58	100 (78)
More than High School				
10th Grade	24	34	42	100 (50)
12th Grade	19	21	60	100 (58)
	(*Average Reading Test Score*)			
Less than 12th Grade				
10th Grade	32	29	39	100 (106)
12th Grade	25	25	50	100 (124)
High School Graduate				
10th Grade	27	28	45	100 (157)
12th Grade	26	16	58	100 (105)
More than High School				
10th Grade	30	31	39	100 (156)
12th Grade	21	23	56	100 (136)
	(*High Reading Test Score*)			
Less than 12th Grade				
10th Grade	33	28	39	100 (168)
12th Grade	25	23	52	100 (124)
High School Graduate				
10th Grade	32	20	48	100 (238)
12th Grade	37	23	40	100 (160)
More than High School				
10th Grade	35	25	40	100 (358)
12th Grade	28	24	48	100 (287)

life (78 vs. 87 per cent). The parochial school data show a strong tendency in this direction but the differences in the distribution of Negro and white students' opinions are not statistically significant.

2. *What Ability Tests Measure.* Our findings for the relationship between race of the respondent and opinions about the origins of abilities measured by intelligence tests (Table 2.7.1) parallel those just described. Fewer Negro than white respondents say that performance on intelligence tests is predominantly the product of learning (49 vs. 62 per cent).

This difference in the distribution of white and Negro opinion is highly significant ($p<.001$); in the parochial schools no reliable differences emerge.

The Negro respondents' emphasis on "innate" factors on the two questions about the origins of intelligence is quite surprising. Consideration of their standing in regard to social position would have led us to expect opinion distributions oriented toward the "learned intelligence" and "continual development" points of view—at least, these views are the predominant ones among respondents in the lower father's educational groups. To clarify this we studied the relationship between race and opinion, controlling for differences in father's education. Tables 2.10 and 2.11 present these data for the public school sample. Examination reveals that the influence of race on opinions about the nature of intellectual development and, as well, about the origins of abilities measured by intelligence tests, were largely independent of father's educational level. Indeed, the differences of opinion between white and Negro respondents appears to be most pronounced at the very lowest level of this indicator of social position.

3. *Stability of Intelligence Test Scores in General.* Now for the contrast: the data presented in Table 2.8.1 show that more Negro than white respondents (60 vs. 51 per cent) believe that a substantial improvement in test scores is possible when optimal conditions are provided. This difference in attitude among the two groups approaches significance at the .02 level. A difference of equivalent magnitude in the parochial schools—56 per cent of the Negro respondents compared to 46 per cent of the white respondents indicate the possibility of substantial gains in intelligence test scores—does not attain the .05 level of significance, again because of the small number of Negro respondents in this comparison.

4. *Stability of Respondents' Own Test Results.* The Negro/white difference becomes more extreme when we consider attitudes toward changes in one's own intelligence test scores. Table 2.9.1 shows that in the public schools 72 per cent of the Negro respondents report that their intelligence test scores have improved over the years, while 46 per cent of the white respondents so view changes in their test performance. Correspondingly, many fewer Negro than white students (22 vs. 45 per cent) describe their intelligence test scores as having remained at the same level. The association between race and perception of stability is significant at well beyond the .001 level of confidence.

So we see that in spite of their greater emphasis on genetic or fixed components of intelligence, the Negro respondent is far more optimistic than is the white respondent about room for improvement. Moreover, data available on this point (Coleman, 1966) strongly suggest that the performance of Negroes relative to that of white deteriorates over the

school years. Given this disparity, we decided to look at the relationship between race and perception of change, while controlling on reading test scores. The outcome of this analysis, presented in Table 2.12, clearly runs counter to commonsense expectations. The Negro respondents whose performance on the reading test is the poorest are the ones who see the most improvement in their intelligence test scores; 79 per cent of this group, compared to only 49 per cent of the white respondents of comparable ability, indicate that their scores have improved. This difference is also present, though to a lesser degree, in the comparison of white and Negro respondents of both average and high reading test scores.

To sum up, we see that Negro respondents, especially those from lower socioeconomic and reading test strata, emphasize the importance of inborn and genetic factors. At the same time, they affirm the possibility that scores on intelligence tests are readily improvable, and also claim such improvement in describing changes in their own test results. Analyses controlling reading test scores strongly suggest that these beliefs do not stem from actual improvements. If such improvements have occurred, they were at best minimal. We will see in other chapters in this study that there are other distinctive qualities to Negro beliefs and attitudes about intelligence and its testing.

Religion[7]

Significant relationships between the religious affiliation of our respondents and their opinions about the origins of intelligence were limited to the data for the public school sample.[8] The major difference here is between the opinions of Jewish respondents, on the one hand, and of Catholic and Protestant respondents on the other.

1. *Changes in Intelligence.* Table 2.6.1 shows that fewer Jewish (78 per cent) than either Catholic or Protestant respondents (88 per cent) felt that intelligence continues to increase throughout one's life. The overall relationship between religion and attitude is significant ($p<.001$).

2. *What Ability Tests Measure.* The relationship between religious affiliation and opinion about the relative importance of inborn and learned abilities as determinants of intelligence test performance (Table 2.7.1) indicates that Jewish respondents give considerably greater weight to the contribution of inborn factors. They were somewhat more critical as well of the validity of intelligence tests than were Catholic or Protestant respondents ($p<.001$).

These relationships between religious affiliation and opinion about

[7] Respondents who did not wish to answer this question and those who indicated "Other" were excluded from the data reported here.

[8] No analyses by religion were performed on the parochial school data. In the private schools there were only 47 Jewish respondents.

TABLE 2.10 Beliefs about the nature of intellectual development (Item 62) by race of respondent, controlling for father's educational level

	Public School Students				
	Intelligence:				
	Is Fixed at Birth %	*Increases Through Part of Life* %	*Continues to Increase Throughout Life* %	*Total* % (f)	*Don't Know* % (f)
Father's Education:					
Less than 12th Grade:					
White	5	6	89	100 (2042)	11 (20)
Negro	11	10	79	100 (193)	13 (29)
High School Graduate:					
White	7	6	88	101 (1249)	10 (143)
Negro	23	3	74	100 (61)	15 (11)
More than High School:					
White	9	7	83	100 (969)	9 (93)
Negro	16	0	84	100 (31)	14 (5)

the origins of intelligence suggest a number of possible interpretations. First, the results are consistent with differences in the socioeconomic position of the three religious groups within our sampling of public schools. Respondents from the higher father's educational levels tend to view intelligence tests as measuring inborn ability to a greater extent than respondents at the lower father's educational levels and the average amount of father's education among Jewish respondents exceeds that of Protestant and Catholic respondents in the public schools. (See Appendix B.)

A second, complementary explanation capitalizes on religious differences in intellectual performance as measured by the reading test. The performance of Jewish respondents in the public schools was, on the whole, somewhat better than that of the other two religious groups. And, as we shall see below, respondents who score high on this measure are also those who are most favorably disposed to the fixed intelligence and inborn ability points of view.

Let us note here that both of these interpretations can explain (because of range restriction on the variables) the absence of differences in opinion associated with religion among private school students. In this group we find no reliable differences in opinion about the origins of intelligence and there are essentially no differences, either in father's education or in reading test scores, between the three religious groups.

TABLE 2.11 Beliefs about the origins of tested intelligence (Item 122) by race of respondent, controlling for father's educational level

	Public School Students					
	Intelligence tests measure:					
	Only or Mostly Inborn Intelligence %	*Inborn Intelligence & Learning Equally* %	*Only or Mostly Learned Intelligence* %	*Don't Measure Intelligence* %	*Total* % (f)	*Don't Know* % (f)
Father's Education:						
Less than 12th Grade:						
White	13	19	64	4	100 (1876)	18 (419)
Negro	33	16	50	1	100 (179)	18 (40)
High School Graduate:						
White	14	20	62	5	101 (1132)	18 (257)
Negro	27	25	48	0	100 (59)	18 (13)
More than High School:						
White	18	20	59	4	101 (905)	15 (156)
Negro	26	15	48	11	100 (27)	24 (9)

TABLE 2.12 Beliefs about the stability of their own intelligence test results (Item 121) by race, controlling for reading test scores

	Public School Students			
	Test results tend to:			
	Go Down %	*Remain the Same* %	*Rise* %	*Total* % (f)
Low Reading Test:*				
White	10	41	49	100 (733)
Negro	6	15	79	100 (52)
Average Reading Test:				
White	7	45	48	100 (914)
Negro	3	38	59	100 (34)
High Reading Test:				
White	7	50	43	100 (929)
Negro	4	38	58	100 (26)

* Respondents scoring in the lowest reading test decile have been removed for this analysis. The low, average, and high groupings thus contain three deciles each.

Still a third explanation (but a weak one, in this instance) of these religious differences in beliefs about the origins of intelligence is that they derive from subcultural factors that are independent of differing education or intellectual performance. Consider, however, that the "traditional" emphasis of scholarship and education in the Jewish family (Strodtbeck, 1958) would most likely lead to the prediction in the opposite direction—of a tendency toward an experiential conception of the origins of intelligence. Respondents' religious affiliation was not significantly related to opinions about the stability of intelligence test scores in general, although trends present in the data—that Jewish respondents were less optimistic about the changes for improvement of test scores—are consistent with the origins data discussed above. Similarly, the distribution of attitudes about changes in the respondent's own testing results was not related to religion (see Table 2.9.1).

READING TEST SCORES, EDUCATIONAL ASPIRATIONS, AND EXPERIENCES WITH TESTS

Reading Test Scores

Two characteristics related to beliefs and attitudes about intelligence testing are the respondents' actual intelligence and their desire for higher education. In Appendix B we describe in full our measures of these two student characteristics, and their intercorrelation with other social background and personality characteristics. It will suffice at this point just to report that to measure student intelligence a reading com-

prehension test of good reliability and validity was administered to all of the respondents in the three types of schools immediately after the students had completed their questionnaires. There are good grounds for the assumption that the dimension measured by this test represents a kind of general intelligence. In our analysis raw scores were converted into percentile ranks and we use only decile groupings of the percentile ranks in examining the relationship of reading test scores to selected beliefs and attitudes.

1. *Changes in Intelligence.* The results presented in Table 2.13.1, also in Tables 2.13.2–2.13.3 deposited with the NAPS, show that the proportion of respondents who believe intellectual development to be fixed at birth is significantly larger ($p<.001$) among students classified in the higher deciles. Even in the private schools, where because of the reduced number of "average" and a virtual absence of "low" reading test respondents, the relationship is nonsignificant, large differences in this direction were obtained.

2. *What Ability Tests Measure.* The relationship between reading test scores and opinions about the origins of tested intelligence is a significant one in the public and parochial schools (see Table 2.14.1; also Tables 2.14.2–2.14.3 deposited with the NAPS). Low scorers place a greater emphasis on the importance of learning and correspondingly less emphasis on inborn abilities as factors influencing intelligence test results. The private school data, though again not significant, show a trend that is consistent with these results.

3. *Stability of Intelligence Test Scores in General.* In all three schools, high reading test scorers see less possibility of improvement for intelligence test scores (see Table 2.15.1; also Tables 2.15.2–2.15.3 deposited with the NAPS). The association in the public schools between these variables is significant and better than the .001 level of confidence. In the parochial schools, 58 versus 41 per cent of the high and low reading test group, respectively, believe that intelligence test scores are quite stable ($p<.02$). The trend for the private school respondents is in this direction, too.

4. *Stability of Respondents' Own Test Results.* Respondents' views of changes in their own test results in relation to their reading test scores are presented in Table 2.16.1 and in Tables 2.16.2–2.16.3 deposited with the NAPS. Here the low scorers on the reading test see the greatest improvement in their scores over the years. In the public schools, 50 per cent of the students classified in the lower three deciles report that their scores have improved, while only 39 per cent of this group of respondents feel that their scores have remained at the same level. These proportions are nearly reversed among the students whose reading test scores place them in the highest three deciles of the distribution on this

variable; 50 per cent see stability in their own test performances, while only 42 per cent feel that their scores have been improving ($p<.001$). The results for the parochial schools are consistent with this pattern; those for the private schools are not, but in neither case does the relation between reading test scores and perception of stability even approach the .05 level of significance.

These results may seem familiar, reminding us of relationships between father's educational level and attitudes, and reminding us also of Negro attitudes. We see that this group of low scorers on the reading test are similar to Negro respondents (and, indeed, include many of them) in their beliefs that test scores, both of others and their own, can and do continue to improve. But they differ from the Negro respondents in that they do not hold such a fixed genetically based view of the nature of intelligence. As for father's education, we find these low reading test scorers to be similar to respondents of lower educational levels (and, indeed, many are included) in believing that intelligence comes from experience and continues to grow throughout life. But they differ from the lower educational group, in that they are more optimistic about improvements in intelligence test scores.

It may be that for this category of respondents, believing that intelligence can be changed and believing that test scores can and have improved, are complementary in providing the student an effective way of dealing with his low test scores. That is, it is doubtful that the perception of improvement is a veridical one for many of this group: indeed, given their present standing, deterioration seems as likely as improvement to be the accurate description of the actual changes that may have taken place. Can we say that this pattern of beliefs is, in part, compensatory; that is, that to score low on tests of ability lowers one's self-esteem and sets in motion defensive attitudes and beliefs, in this instance the idea that intelligence is a product of experience and is readily changed, continues to grow over the life span, and that one's own test scores have been improving?

Educational Aspirations

Our measure of educational aspiration derives from respondents' plans for the schooling they expect to attain. The relationships of educational aspiration to opinions about the origins of intelligence are quite similar to those just described for reading test scores. The respondents whose educational plans include the completion of four years of college: (1) place greater emphasis on the view that intellectual development is fixed at birth; (2) stress the contribution made by inborn abilities to intelligence test performance; and (3) show a greater tendency to discount the possibility for an average person to raise his intelligence test score in

TABLE 2.13.1 Beliefs about the nature of intellectual development (Item 62) by reading test scores, educational aspiration, and experience with tests and ability grouping

	Public School Students				
	Intelligence:				
	Is Fixed at Birth %	*Increases Through Part of Life* %	*Continues to Increase Through-out Life* %	*Total* % (f)	*No Opinion* % (f)
Reading Test Scores: ($p < .001$)					
Low	3	7	89	99 (1339)	13 (208)
Average	6	5	89	100 (1561)	9 (147)
High	10	5	85	100 (1485)	9 (139)
Educational Aspiration: ($p < .001$)					
High School or less	4	8	88	100 (1062)	15 (187)
Some College	5	6	88	100 (1607)	10 (189)
College B.A.	9	4	87	100 (1332)	8 (118)
Advanced Degree	12	7	81	100 (644)	8 (59)
Intelligence Test-Taking Experience: ($p < .001$)					
Several	7	5	88	100 (2634)	8 (239)
Once	7	6	86	99 (1099)	10 (127)
Not Sure	5	11	84	100 (617)	14 (101)
None	10	8	82	100 (138)	19 (32)
College Entrance Test-Taking Experience: ($p < .001$)					
Several	15	6	79	100 (256)	12 (34)
Once	10	6	84	100 (634)	8 (57)
Not Sure	5	6	89	100 (271)	11 (33)
None	6	6	88	100 (748)	9 (76)
Ability Grouping Experience: ($p < .001$)					
Never	6	7	88	101 (2789)	12 (375)
Once	8	6	87	101 (1173)	10 (133)
Twice	12	7	82	101 (607)	8 (54)
Three Times	14	2	83	99 (138)	8 (12)

any substantial way. The similarity in opinion on these three questions in relationship to reading test scores and educational aspiration is hardly surprising in view of their overlap.

As we know from Appendix B, aspirations show a substantial positive correlation with reading test scores in both the public and the parochial schools ($r + .40$; $p<.001$); even in the private schools where the effective range of both variables is severely restricted, the correlation ($r = +.19$) is significant beyond the .01 level of confidence. Analyses controlling reading test scores and examining aspirational level in relation to beliefs virtually eliminate the relationship, suggesting that it is the ability variable measured by the reading test, rather than aspirational level, that is associated with the variation in attitudes.

But for the fourth attitude item; that is, whether one thinks his own scores on intelligence tests have stayed the same or gone up or gone down, we find a quite different pattern. As we have seen before, this particular attitude item is relatively independent of the other three, and certainly it is the case here. The results given in Table 2.16.1 show that as aspirations rise, so do students' beliefs that their intelligence test scores have risen. Controlling for reading test scores, Table 2.17 (deposited with the NAPS) shows this relationship even more clearly. At the low reading test score level and the average level, as aspirations for higher education rise, so does the percentage of responses stating that one's intelligence test score has gone up. This effect is not in evidence for the high reading test score students.

Chapter 8 deals in detail with the relationship between educational aspirations and the students' self-estimates of intelligence. Drawing on several decades of research on level of aspiration, it is shown that these two variables are interactive, in that as aspirations rise, so do one's estimates of his abilities to achieve the goal set, and also that as one's estimates of his abilities rise, so do one's aspirations. We see in the instance at hand the expression of this social psychological process. Presumably as aspirations rise, so do the judgments that one's own test scores have risen, and presumably as one's test scores may, in fact, have risen from earlier even lower levels, so do one's aspirations rise. Thus, to be even more explicit, the statement that one's test scores have risen may be true, and the impact on aspiration is to raise the aspirational level; or the test scores may not, in fact, have risen but the student's higher educational goals lead him to say they have; that is, the direction of influence runs in the opposite way.

Experience with Intelligence and College Entrance Tests

The large majority of our respondents reported that they have taken at least one intelligence test. In Chapter 4 we note that about half of the public school respondents, and even larger proportions of students en-

TABLE 2.14.1 Beliefs about the origins of tested intelligence (Item 122) by reading test scores, educational aspiration, and experience with tests and ability grouping

	Public School Students					
	Intelligence tests measure:					
	Only or Mostly Inborn Intelligence %	*Inborn Intelligence & Learning Equally* %	*Only or Mostly Learned Intelligence* %	*Don't Measure Intelligence* %	*Total* % (f)	*No Opinion* % (f)
Reading Test Scores: ($p < .001$)						
Low	15	17	64	5	101 (1184)	23 (355)
Average	12	19	65	4	100 (1435)	16 (269)
High	16	22	59	2	99 (1404)	14 (220)
Educational Aspiration: ($p < .001$)						
High School or less	17	17	60	6	100 (948)	24 (298)
Some College	13	19	65	3	100 (1474)	18 (315)
College B.A.	15	20	62	3	100 (1230)	15 (214)
Advanced Degree	19	22	55	5	101 (618)	12 (84)
Intelligence Test-Taking Experience: ($p < .01$)						
Several	14	19	64	3	100 (2466)	14 (399)
Once	16	21	59	3	99 (1013)	17 (210)
Not Sure	17	19	60	4	100 (536)	25 (180)
None	24	15	53	8	100 (114)	33 (56)

TABLE 2.14.1 (*Continued*)

	Public School Students							
	Intelligence tests measure:							
	Only or Mostly Inborn Intelligence %	*Inborn Intelligence & Learning Equally* %	*Only or Mostly Learned Intelligence* %	*Don't Measure Intelligence* %	*Total* %	(*f*)	*No Opinion* %	(*f*)
College Entrance Test-Taking Experience: ($p < .01$)								
Several	27	26	44	3	100	(252)	12	(36)
Once	17	21	59	3	100	(603)	13	(87)
Not Sure	13	17	62	8	100	(254)	16	(48)
None	13	18	65	4	100	(107)	19	(154)
Ability Grouping Experience: ($p < .001$)								
Never	14	20	61	4	99	(2516)	20	(632)
Once	14	21	62	3	100	(1115)	14	(187)
Twice	22	15	59	4	100	(560)	15	(101)
Three Times	19	21	56	4	100	(134)	10	(15)

TABLE 2.15.1 Beliefs about the stability of intelligence test scores (Item 68) by reading test scores, educational aspiration, and experience with tests and ability grouping

	Public School Students					
	Intelligence test scores can be raised at most by:					
	0 to 10% %	*20 to 50%* %	*Total* %	(f)	*Don't Know* %	(f)
Reading Test Scores: ($p < .001$)						
Low	46	54	100	(831)	46	(710)
Average	48	54	100	(880)	48	(815)
High	55	45	100	(885)	46	(741)
Educational Aspiration: (n.s.)						
High School or less	46	54	100	(653)	48	(594)
Some College	47	53	100	(939)	49	(852)
College B.A.	50	50	100	(804)	45	(646)
Advanced Degree	53	47	100	(389)	45	(315)
Intelligence Test-Taking Experience: (n.s.)						
Several	50	50	100	(1576)	45	(1299)
Once	48	52	100	(672)	45	(556)
Not Sure	45	55	100	(375)	48	(340)
None	46	54	100	(82)	51	(87)
College Entrance Test-Taking Experience: (n.s.)						
Several	59	41	100	(152)	48	(138)
Once	55	45	100	(352)	49	(339)
Not Sure	51	49	100	(166)	45	(138)
None	48	52	100	(438)	47	(381)
Ability Grouping Experience: (n.s.)						
Never	48	52	100	(1606)	49	(1558)
Once	49	51	100	(725)	44	(578)
Twice	49	51	100	(404)	39	(257)
Three Times	50	50	100	(99)	34	(51)

rolled in the parochial and private schools, indicated that they have taken these tests not once, but several times. The question that we raise here is: How are the distributions of opinion about the origins and stability of intelligence related to the amounts of experience respondents have had with intelligence and college entrance tests?

Before we review these data, it is important to point out that there are several significant correlations (especially in the public and parochial schools) between amount of experience with either of these two types of tests and such dimensions as reading test score, educational aspiration level, and father's education. In general, respondents who are "high"

TABLE 2.16.1 Beliefs about the stability of their intelligence test results (Item 121) by reading test scores, educational aspiration, and experience with tests and ability grouping

	Public School Students				
	Intelligence test scores tend to:				
	Go Down %	*Remain the Same* %	*Rise* %	*Total* %	(f)
Reading Test Scores: ($p < .001$)					
Low	10	39	50	99	(802)
Average	7	45	48	100	(967)
High	7	50	43	100	(972)
Educational Aspiration: ($p < .05$)					
High School or less	12	42	46	100	(605)
Some College	9	45	46	100	(989)
College B.A.	7	45	48	100	(871)
Advanced Degree	7	43	51	100	(451)
Intelligence Test-Taking Experience: (n.s.)					
Several	8	45	47	100	(1835)
Once	8	44	49	101	(626)
Not Sure	10	42	48	100	(301)
None	13	37	50	100	(60)
College Entrance Test-Taking Experience: (n.s.)					
Several	6	52	43	101	(217)
Once	9	48	43	100	(445)
Not Sure	10	47	43	100	(167)
None	10	44	47	101	(217)
Ability Grouping Experience: ($p < .02$)					
Never	10	45	46	101	(1700)
Once	7	46	47	100	(756)
Twice	9	37	55	101	(388)
Three Times	6	45	50	101	(107)

on these dimensions reported more testing experience than did respondents who are "low." The point, then, is that where the influence of increasing amounts of test experience on attitudes runs parallel to that of increasing aspiration or reading test scores, respondents' positions on these latter dimensions offer alternative explanations for the testing experience relationship. Given the distributional properties of the testing experience variables, it would have been too difficult and costly, considering the probable yield, to tease out in cross-tabulations the independent contribution of test experience from each of the several correlated dimensions mentioned above.

1. *Changes in Intelligence.* Experience with standardized testing is significantly related to opinions about the nature of intellectual devel-

TABLE 2.18 Beliefs about the stability of their own intelligence test results by educational aspiration, controlling for reading test score

	Public School Students			
	Intelligence test scores tend to:			
	Go Down %	*Remain the Same* %	*Go Up* %	*Total* % (*f*)
Low Reading Test:				
Aspiration: High School or less	12	43	44	99 (286)
Aspiration: Some College	11	40	49	100 (304)
Aspiration: 4 Years of College	5	35	60	100 (147)
Aspiration: Advanced Degree	12	23	65	100 (52)
Average Reading Test:				
Aspiration: High School or less	11	43	46	100 (159)
Aspiration: Some College	7	48	45	100 (400)
Aspiration: 4 Years of College	6	44	50	100 (297)
Aspiration: Advanced Degree	7	40	53	100 (107)
High Reading Test:				
Aspiration: High School or less	6	47	47	100 (64)
Aspiration: Some College	9	51	39	99 (222)
Aspiration: 4 Years of College	8	50	42	100 (410)
Aspiration: Advanced Degree	4	49	47	100 (273)

opment, but it is not possible to make a general statement about the direction of this relationship. When we consider experience with intelligence tests, we find in the public schools (see Table 2.13.1) that increasing amounts of experience were associated with the belief that intellectual development is a continuous process ($p<.001$). In the parochial and private schools, the reverse relationship obtains: increasing amounts of intelligence test experience was associated with more frequent assertion that intellectual development is fixed at birth ($p<.02$). The data for the public schools are not what we would expect, and the pattern in the two other schools and in all three schools, for college entrance tests, as we see below, is what we would expect. Given the relationship between intelligence test experience and the related variables mentioned just above, we would have thought that test-taking experience would be associated with a belief that intelligence is relatively fixed. More detailed examination suggests that we have a confounding effect of sex here, in that females are more likely than males to hold the belief that intelligence continues to increase throughout life, in all three school groups, but only in the public schools do females report more test-taking experience than males; indeed, the relationship is reversed in the parochial and private schools. It seems quite likely that the reversal is due to this difference.

Turning now to the results for college entrance test experience, we can

see that the relationship of this variable to beliefs about the nature of intellectual development was consistent across all three types of schools.[9] Following the pattern presented by the parochial school data cited above, and that pattern which we would expect on the basis of reading test or father's educational differences between the amount of college entrance test experience groups, we find that fewer public school respondents who have taken college entrance tests several times than those who have never taken these tests (79 vs. 88 per cent), regard intellectual development as a continuous process, while more of the former than the latter group (15 vs. 6 per cent) believe that intellectual development is fixed at birth. This relationship is a significant one ($p<.001$) and that for the parochial school respondents is reliable beyond the .01 level of confidence. In the private schools, more than 98 per cent of the twelfth-grade respondents reported that they have taken college entrance tests several times. For this reason, meaningful analyses for this variable could not be performed.

2. *What Ability Tests Measure.* The pattern of results for this question about the relative contribution of inborn and learned abilities as determinants of intelligence test performance duplicate so precisely (including the inversion of relationship on intelligence test experience for the public school respondents) those reported above that there is no need to describe them here.

There is no significant relationship between either measure of test experience and respondents' attitude toward the stability of intelligence test scores in general. Similarly, feelings about the stability of respondents' own test results are independent of the amount of reported intelligence or college entrance testing. Thus, the data presented in this section suggests that repeated test-taking is associated with a belief that inborn rather than learned factors account for the origins in development of intelligence.

Ability Grouping Experience

Ability grouping, or the stratification of pupils into classes according to their test performances and grades, is a fairly widespread practice in American education today. Although this stratification is usually dealt with by school officials in a discreet manner (for example, classes are labeled "9s," "9b," or "9–1," "9–2," and so forth), we know that students are generally cognizant of that existence of grouping and also that they have some awareness of where they stand in the resultant hierarchy. (See Chapter 10.)

The relationship between the extent of respondents' experience with

[9] The results reported on experience with college entrance tests include only the twelfth-grade respondents in each school.

ability grouping and beliefs about the nature of intellectual development are presented in Table 2.13.1; also in Tables 2.13.2–2.13.3 deposited with the NAPS. In both the public and the parochial schools, increasing amounts of ability grouping experience are associated with a greater incidence of the belief that intellectual development is fixed at birth (6 per cent of public school respondents reporting no grouping experience hold this opinion compared to 15 per cent of the public school respondents reporting grouping at the primary grade, junior high school, and the high school levels) and a lesser incidence of the belief that intellectual development is a continuous, life-long process. The results for the public schools are significant ($p<.001$) and those for the parochial schools exceed the .01 level of confidence; the results for the private schools do not replicate this relationship.

Parallel findings were obtained for origins of tested intelligence. Respondents in the public and parochial schools with several exposures to ability stratified education place relatively greater weight on the contribution of inborn abilities to intelligence test performance than do respondents who have never been grouped. Again, this relationship is not replicated in the private school sample, probably because of range restriction.

An interpretation of these differences in belief about the origins of intelligence points toward the differences in reading test score and testing experience that distinguish respondents at each level of experience with ability grouping. That is, respondents with several grouping experiences score generally higher on the reading test, report more testing experience, and tend to have higher social position; and these differences, rather than ability grouping per se, may be the cause of the results just presented.

Extent of respondents' experience with ability grouping was not significantly related to beliefs about the stability of intelligence test scores in general. In regard to the stability of respondents' own test results, we find that those who have extensive exposure to ability grouping more frequently feel that their intelligence test scores have increased than do respondents with no grouping experience. However, this relationship only approaches statistical significance ($p<.02$) in the public and parochial schools and is not at all replicated in the private school results.

To summarize the results reported in this section, we have shown that a cluster of interrelated dimensions describing respondents' ability, aspiration, and educational experiences have a substantial bearing on beliefs about the origins of intelligence. With certain exceptions, respondents who are "high" in reading test scores and aspiration, and who report considerable experience with testing and ability grouping, place greater emphasis on the contribution of inborn determinants of intelligence.

TABLE 2.19.1 Beliefs about the nature of intellectual development (Item 62) by selected personality variables

	Public School Students				
	Intelligence:				
	Is Fixed at Birth %	*Increases Through Part of Life* %	*Continues to Increase Throughout Life* %	*Total* % (f)	*No Opinion* % (f)
Fatalism Factor Score: (n.s.)					
Low	8	5	87	100 (2336)	9 (221)
High	6	8	86	100 (2369)	13 (353)
Index of Intellectual Elitism-Equalitarianism: ($p < .001$)					
Elite	9	8	83	100 (1255)	12 (176)
Intermediate	6	6	88	100 (1996)	10 (224)
Equalitarian	6	5	89	100 (1173)	9 (119)

PERSONALITY CHARACTERISTICS

In this final section we consider the relations between the dimensions of personality described in detail in Appendix B and attitudes about the origins and the stability of intelligence (see Table 2.19.1; also Tables 2.19.2–2.22.3 deposited with the NAPS). We approached these data bearing a number of hypotheses that were almost uniformly not confirmed by the results. We expected, for example, that respondents scoring high on the fatalism factor would show strong leanings toward the fixed intellectual development, inborn determinants of intelligence, and perhaps also stability of test result beliefs. Individuals who see their personal destiny as determined by forces that are beyond their control should, we expected, hold these attitudes.

The data, however, show no significant association between fatalism factor scores and any of these attitudes. The suspicion that differences in social position between high and low fatalists—the "highs" being on the average considerably lower in father's education—were masking the expected relationships, proved equally unfounded. Analyses controlling for father's education still indicate that there was no connection between the beliefs of lack of personal control of the high fatalist and beliefs about the origins of intelligence or about its stability.

The one dimension that yielded consistently significant relationships was that of intellectual elitism-equalitarianism. The equalitarian orientation is associated with the belief that intellectual development is a continuous, life-long process, while the elitist orientation is associated with the belief that intelligence is fixed at birth. This relationship is sig-

nificant ($p<.001$) in all three schools. The same form of relationship is obtained in regard to beliefs about the origins of tested intelligence: elitists tend to stress the contribution of inborn determinants. This relationship was, however, significant ($p<.001$) only in the public schools. Intellectual elitism-equalitarianism was not related to the beliefs about the stability of intelligence.

3

The Importance of Tested Intelligence

WE ASKED our student respondents, "How important do you feel the kind of intelligence measured by intelligence tests is for success in school?" Five alternative evaluations and an additional "no opinion" category were provided as answers for this question, as follows: "It is not important at all," "It is not so important as some other qualities," "It is no more important than other qualities," "It is more important than some other qualities but by itself it is not enough," and "It is the most important factor for success in school or college." Another item, identical to the one just described, asked students to evaluate the relative importance "of the kind of intelligence measured by intelligence tests" regarding "success in life after graduation from school or college."

GENERAL FINDINGS

The distribution of opinions evaluating the importance of tested intelligence is presented in Table 3.1.1. We want to make three points about the data presented in this table. First, the preponderant opinion is that tested intelligence is more important than most other qualities, but by itself intelligence is not enough. A substantial number of people add that it is no more important than other qualities, and a smaller but still important group say that it is not so important as some other qualities.

Second, we see from looking at the tabulation that the importance attributed to abilities measured by intelligence tests is slightly greater in the school-success context than it is in the life-success context. In the public schools, for example, 52 per cent of the respondents feel that tested intelligence is of considerable importance for success in school, while 45

TABLE 3.1.1 Beliefs about the importance of tested intelligence for success in school or college or life (Items 254 and 255): *"How important do you feel the kind of intelligence measured by intelligence tests is for success in school or college?"* and *"How important do you feel the kind of intelligence measured by intelligence tests is for success in life after graduating from school or college?"*

	Secondary School Students					
	Public		*Parochial*		*Private*	
	School %	*Life* %	*School* %	*Life* %	*School* %	*Life* %
It is not important at all	6	9	5	11	10	20
It is not so important as some other qualities	14	17	19	21	26	26
It is no more important than other qualities	27	29	29	31	28	29
It is more important than most other qualities but by itself intelligence is not enough	43	35	41	31	35	24
It is the most important factor in success in school or college	9	10	6	6	1	1
TOTAL	99 (4062)	100 (4219)	100 (2224)	100 (2295)	100 (1071)	100 (1076)
No Opinion	22 (1173)	19 (1009)	15 (386)	12 (323)	10 (121)	10 (114)
No Response	(86)	(93)	(26)	(18)	(6)	(8)

per cent feel it is of considerable importance for success in life after graduation from school.

Granted this difference in the distributions, the respondents' evaluations of the importance of tested intelligence for obtaining success in the context of "school" and "life" overlap very substantially. The contingency coefficient equals .73 in the public schools, and having made the point in the paragraph above, we chose in our subsequent analyses to simplify the presentation and consider the results for only one of these, assuming that there would not be much loss of important information. In this chapter we chose the context of "success in life" because of its greater generality of interest.

The third aspect of the data in Table 3.1.1 that one sees almost at once is the marked difference in the distribution of opinion between the three school types. The proportion of respondents who feel that tested intelligence is not very important for achieving success, both in school and in life, increases as we move from the public (20 per cent and 26 per

cent) and parochial schools (24 per cent and 32 per cent) to the private schools (36 per cent and 46 per cent).

These observations about student attitudes toward tested intelligence can be put into a broader context by reference to Table 3.1.2, where we present the answers the students give about the importance of a number of personal attributes such as good health, popularity, and creativity. In this instance, intelligence was included as one of the items, but here no reference was made to tested intelligence, just intelligence alone. There we see some significant differences in attitudes toward the importance of tested intelligence and of intelligence, more generally. First, good health emerges as the most desirable attribute, followed by intelligence and "drive to get ahead" for the public school students. Much the same pattern occurs for the students in the other two schools, with the exception that "drive to get ahead" is ranked as slightly more desirable than intelligence, which ranks third in the list in these schools. The data here are in accord with results just presented above, in that intelligence is viewed as more important than most of the other qualities, but is not viewed as of the greatest, or exclusive, importance.

We also see that the private school students most frequently rate intelligence as extremely important, a fact in contrast to their more negative attitudes toward the importance of "measured" or "tested" intelligence, as reported just above. This is in accord with other findings in the study, since the students with higher reading test scores, higher socioeconomic background, and, indeed from private schools, are more critical of tests in general, and so we would expect them to say that this type of intelligence, that is, tested intelligence, is less important.

There is a related reason why the private school students see tested intelligence as less important, and we note this later in Chapter 5 on attitudes toward accuracy. It is that private school teachers, as indicated in Goslin's *Teachers and Testing* (1967), place less emphasis on the accuracy of tests. For example, teachers were asked about the use of "I.Q. scores" in writing recommendations for college admissions and scholarship tests. Among public school teachers, 34 per cent said they made fairly great or great use of tests, 48 per cent moderate use, and 18 per cent slight or no use. Private school teachers showed 11 per cent fairly great or great use, 52 per cent moderate use, and 37 per cent slight or no use. These teacher attitudes (and actual practices) must certainly affect the outlook of students, and also reflect the general outlook of many private schools, which is that the student would not be there in the first place if he did not have intelligence or some other type of "potential." Conversely, public school teachers more often will let their students know that test results "count."

The responses to one other question confirm the differences in attitude toward the importance of tested intelligence and the importance of

TABLE 3.1.2 Beliefs about the importance of selected attributes (Items 37–45): *"How important do you think it is to have each one of the following?"*

	Secondary School Students					
	Public		*Parochial*		*Private*	
	%	N	%	N	%	N
Good Health:						
Extremely important	73	(3855)	60	(1586)	55	(663)
Important	24	(1270)	35	(918)	38	(454)
Somewhat important	2	(119)	4	(91)	6	(67)
Unimportant	*	(23)	*	(4)	1	(9)
Very unimportant	1	(46)	1	(32)	*	(4)
No Response	*	(8)	*	(5)	*	(1)
Intelligence:						
Extremely important	43	(2299)	39	(1019)	45	(538)
Important	49	(2601)	53	(1392)	48	(568)
Somewhat important	6	(306)	6	(171)	6	(72)
Unimportant	*	(20)	*	(11)	1	(12)
Very unimportant	2	(79)	1	(35)	*	(5)
No Response	*	(16)	*	(8)	*	(3)
Good Marks:						
Extremely important	30	(1583)	25	(658)	17	(199)
Important	54	(2851)	54	(1423)	52	(618)
Somewhat important	14	(722)	18	(482)	24	(293)
Unimportant	1	(61)	2	(39)	5	(64)
Very unimportant	2	(84)	1	(27)	2	(22)
No Response	*	(20)	*	(7)	*	(2)
Popularity:						
Extremely important	8	(417)	6	(151)	10	(126)
Important	40	(2136)	41	(1079)	36	(436)
Somewhat important	44	(2354)	46	(1210)	42	(502)
Unimportant	6	(328)	6	(156)	8	(100)
Very unimportant	1	(70)	1	(33)	3	(32)
No Response	*	(16)	*	(7)	*	(2)
Prestige in School:						
Extremely important	9	(461)	7	(187)	8	(94)
Important	43	(2253)	38	(989)	29	(342)
Somewhat important	40	(2087)	45	(1178)	45	(541)
Unimportant	7	(371)	9	(234)	14	(170)
Very unimportant	2	(95)	1	(37)	4	(49)
No Response	1	(54)	*	(11)	*	(2)
Drive to Get Ahead:						
Extremely important	42	(2202)	43	(1121)	54	(641)
Important	44	(2309)	45	(1185)	34	(400)
Somewhat important	12	(615)	10	(271)	10	(118)
Unimportant	1	(77)	1	(20)	1	(16)
Very unimportant	2	(97)	1	(31)	2	(19)
No Response	*	(21)	*	(8)	*	(4)

TABLE 3.1.2 (*Continued*)

	Secondary School Students					
	Public		*Parochial*		*Private*	
	%	*N*	%	*N*	%	*N*
Creativity and Imagination:						
Extremely important	15	(771)	14	(357)	34	(406)
Important	46	(2424)	44	(1152)	44	(528)
Somewhat important	35	(1855)	37	(978)	19	(222)
Unimportant	4	(204)	4	(112)	2	(28)
Very unimportant	1	(44)	1	(22)	1	(10)
No Response	*	(23)	1	(15)	*	(4)
Physical Attractiveness:						
Extremely important	9	(480)	4	(95)	4	(50)
Important	32	(1719)	22	(591)	20	(236)
Somewhat important	41	(2151)	44	(1169)	44	(530)
Unimportant	15	(786)	25	(649)	24	(289)
Very unimportant	3	(166)	5	(122)	7	(88)
No Response	*	(19)	*	(10)	*	(5)
Athletic Ability:						
Extremely important	8	(441)	4	(93)	4	(49)
Important	31	(1663)	20	(519)	21	(255)
Somewhat important	43	(2293)	47	(1245)	45	(543)
Unimportant	14	(757)	25	(661)	22	(262)
Very unimportant	3	(154)	4	(109)	7	(87)
No Response	*	(13)	*	(9)	*	(2)

* Represents less than one per cent.

intelligence generally on the part of the private school students. Table 3.2 asks what is important for getting good marks in school, and intelligence was included among the attributes. Again, it is the private school students who more frequently selected intelligence as more important.

To sum up, we deal in this chapter with attitudes toward the importance of tested intelligence, and these may differ in the student population generally, as they most certainly do among the private school students, from attitudes toward intelligence as a more general attribute. Father's education, as we know, is positively correlated with higher reading test scores, and other variables used in the study. We will see from data in this and other chapters that the students from a lower educational background, who are less likely to score high on standardized tests, less likely to be selected for ability grouping in advanced classes, less likely to get feedback about how they stand on intelligence with reference to others, are still more likely to say tested intelligence is important for success in life. And so it probably is, for them, more important. Intelligence testing has a central role in the scramble for higher education after secondary school, and students who seek to rise in society may be seeing very clearly that test performance is a central criterion, realizing that their future opportunities depend (or *did* depend, if the whole thing is settled) to some large extent on their test performance.

TABLE 3.2 Beliefs about the most important factors for getting good marks in high school (Items 219 and 220): *"Which one of the following would you say is* most important (second most important) *for getting good marks in high school?"*

	Secondary School Students					
	Public		*Parochial*		*Private*	
	Most Important %	*Second Most Important* %	*Most Important* %	*Second Most Important* %	*Most Important* %	*Second Most Important* %
Intelligence	21	43	20	54	27	48
Common sense and experience	11	24	8	16	6	16
Creativity and imagination	2	5	1	4	2	10
Hard work	61	20	68	20	62	23
Good personality	1	2	1	1	0	0
I do not know	4	6	2	4	2	3
TOTAL	100 (5239)	100 (5226)	100 (2620)	99 (2611)	99 (1196)	100 (1193)
No Response	(82)	(95)	(16)	(25)	(2)	(5)

SOCIAL BACKGROUND CHARACTERISTICS

Father's Education

The relationship between father's education and student's opinions about the relative importance of tested intelligence for success in life is given in Table 3.3.1; also in Tables 3.3.2–3.3.3 deposited with the NAPS.[1] We find in the public schools a significant association between ascribing importance to tested intelligence and father's educational background. The higher the father's education, the less likely the student is to view tested intelligence as important for success. (This trend is in evidence in the parochial school students although not as sizable, while no clear relationship shows in the private school body.) Thus, the data show that those from the least privileged backgrounds place a higher valuation on tested intelligence for success.

[1] In these and subsequent tables, the responses to Item 255 have been collapsed to form three categories. The "less importance" category includes the first two items of Table 3.1.1; the category "equal importance" includes the third item of Table 3.1.1; and the category "more importance" includes the fourth and fifth items in Table 3.1.1.

TABLE 3.3.1 Beliefs about the importance of tested intelligence for success in life (Item 255) by social background variables

	Public School Students				
	For post-graduation success in life, tested intelligence is of:				
	Less Importance %	*Equal Importance* %	*More Importance* %	*Total* % (f)	*No Opinion* % (f)
Father's Education: ($p < .001$)					
Less than 12th Grade	24	28	49	101 (2000)	21 (539)
High School Graduate	28	30	43	101 (1198)	21 (282)
Some College	26	33	40	99 (494)	14 (78)
College or more	31	29	39	99 (470)	14 (76)
Sex: (n.s.)					
Male	26	29	45	100 (1889)	21 (487)
Female	26	29	45	100 (2311)	18 (514)
Age: ($p < .001$)					
10th Grade	23	27	50	100 (2345)	21 (629)
12th Grade	30	32	39	101 (1855)	17 (372)
Race: ($p < .001$)					
White	27	30	43	100 (3824)	20 (930)
Negro	11	16	72	99 (278)	13 (43)
Religion: (n.s.)					
Protestant	26	31	43	100 (2252)	15 (406)
Catholic	28	28	43	99 (887)	22 (251)
Jewish	32	30	38	100 (174)	13 (25)

Sex

In each of the three student groups being male or female makes no difference in beliefs about the importance of intelligence.

Grade Level

We find substantial differences between the tenth- and twelfth-grade students in the evaluation they place on intelligence for attainment of success in life. The relationship between grade and opinion is significant ($p<.001$) in all three school types. Between the sophomore and senior years of high school there is a decline in the proportion of students who say tested intelligence is "more important." Just what happens in these two years? We have checked some obvious sources of bias that would operate to distort the data in this direction. For example, if lower social class students tended to drop out of school before they reached the twelfth grade, we would be losing members of the student body who view intelligence as most important for success. However, the loss of students from tenth to twelfth grade is not associated in any significant way with father's education, reading test scores, or other variables used in this

TABLE 3.4 Beliefs about the importance of tested intelligence for success in life (Item 255) by race of respondent and for father's education

	Public School Students						
	For post-graduation success in life, tested intelligence is of:						
Father's Education:	*Less Importance* %	*Equal Importance* %	*More Importance* %	*Total* %	(f)	*No Opinion* %	(f)
Less than 12th Grade							
White	25	29	40	99	(1759)	22	(502)
Negro	6	16	78	100	(184)	12	(26)
High School Graduate							
White	28	30	42	100	(1117)	19	(265)
Negro	23	21	56	100	(57)	16	(11)
More than 12th Grade							
White	29	32	39	100	(919)	13	(140)
Negro	17	13	70	100	(30)	15	(6)

study. Although we have no direct confirmation of this supposition, it seems to us that the change in percentages reflects a growing maturity of the seniors in their recognition of other personal characteristics that are desirable as one prepares to move out of secondary school into either the occupational world, or to the less structured environment of a college.

Race

The data reported in Table 3.3.1 show Negroes to a greater degree than whites stressing the importance of tested intelligence for success in life. This is one of the largest differences found in this study. Controlling for level of father's education, Table 3.4 shows that at each level of father's education many more Negro than white respondents feel that intelligence is very important for achieving success in life. True, the numbers at the higher levels of father's education are small, but it is a very substantial difference (almost double at the "less than twelfth-grade" level).

Religion

Traditionally, Jews have placed a very high value on the pursuit of education and intellectual achievements. We would expect, then, that compared to other respondents, Jewish students would regard tested intelligence as more important for becoming successful. The data do not confirm this expectation. Respondents' religious affiliation was not significantly related to beliefs about the relative importance of intellectual abilities. However, the countervailing tendency to downgrade the impor-

TABLE 3.5.1 Beliefs about the importance of tested intelligence for success in life (Item 255) by reading test scores, educational aspirations, and experience with test-taking

	Public School Students				
	For post-graduation success in life, tested intelligence is of:				
	Less Importance %	*Equal Importance* %	*More Importance* %	*Total* % (*f*)	*No Opinion* % (*f*)
Reading Test Scores: ($p < .001$)					
Low	22	26	52	100 (1113)	27 (409)
Average	27	29	44	100 (1378)	19 (323)
High	29	33	38	100 (1449)	11 (172)
Educational Aspirations: ($p < .01$)					
High School or Less	23	27	49	99 (855)	31 (383)
Some College	25	30	45	100 (1476)	17 (311)
College B.A.	27	30	43	100 (1257)	13 (192)
Advanced Degree	29	28	42	99 (596)	15 (107)
Intelligence Test-Taking Experience: ($p < .05$)					
Several	28	30	43	101 (2404)	16 (440)
Once	24	29	47	100 (994)	18 (223)
Not Sure	22	28	50	100 (529)	25 (176)
None	19	22	60	101 (116)	31 (52)

tance of intelligence associated with relatively higher educational background or relatively higher reading test scores, both characteristic of the Jewish students in this study, may have offset any religious influence. In the absence of a controlled cross-tabulation, we cannot conclude about the effects of religion.

READING TEST SCORES, EDUCATIONAL ASPIRATIONS, AND EXPERIENCE WITH TESTS

We present here a set of interdependent and generally coherent results relating superior performance on an intelligence test, frequent exposure to standardized testing, and high levels of educational aspiration to the more frequent occurrence of opinions minimizing the importance of tested intelligence.

The data presented in Table 3.5.1 and in Tables 3.5.2–3.5.3 deposited with the NAPS show that there is a strong negative relationship between higher reading test scores and beliefs about the importance of abilities measured by intelligence tests. This relationship holds in all three school types. In the public schools, for example, 52 per cent of those with low

TABLE 3.6.1 Beliefs about the importance of tested intelligence (Item 225) by reading test score and father's education

	Public School Students						
	For post-graduation success in life, tested intelligence is of:						
Father's Education:	*Less Importance* %	*Equal Importance* %	*More Importance* %	*Total* %	(f)	*No Opinion* %	(f)
12 Years or less							
Reading Test Score:							
Low	22	25	53	100	(965)	26	(343)
Average	26	28	45	99	(1079)	20	(269)
High	29	34	37	100	(921)	12	(125)
13 Years or more							
Reading Test Score:							
Low	25	32	44	101	(133)	28	(52)
Average	31	31	38	100	(291)	15	(52)
High	29	32	39	100	(520)	7	(41)

reading test scores felt that tested intelligence was of considerable importance for the attainment of success in life, while only 38 per cent of those with high scores were of this opinion ($p<.001$).

The relationship of reading test scores is similar to that described for father's education and, since these two variables are correlated, we sought to appraise the independent contribution of each to attitudes toward the importance of intelligence. (Table 3.6.1 and Table 3.6.2 deposited with the NAPS present the information for the public and parochial schools. Restriction of range was such that we did not make this analysis for the private school data). The results show that while father's education is still inversely related to a belief in the importance of tested intelligence, even with reading test scores controlled, it is the reading test score that shows the more powerful association. At both levels of father's education, the belief in the importance of tested intelligence for the attainment of success in life decreases markedly with increasing reading test scores. So again we see that those who seem less privileged by virtue of intelligence as measured by the reading test, and by father's educational achievements, are those who place most importance on tested intelligence.

As for educational aspirations, the data in Table 3.5.1 are the same as for reading test scores. The correlation between these two variables requires a three-way cross tabulation in order to appraise any independent association with aspirations. Table 3.7.1 (and Table 3.7.2 deposited with the NAPS) present these analyses for the public and parochial school students, where the variation is sufficient to make the analysis worthwhile.

TABLE 3.7.1 Beliefs about the importance of tested intelligence (Item 255) by educational aspiration and reading test score

		Public School Students				
		For post-graduation success in life, tested intelligence is of:				
Reading Test Score	*Educational Aspiration*	*Less Importance* %	*Equal Importance* %	*More Importance* %	*Total* % (f)	*No Opinion* % (f)
Low	High School or less	18	26	56	100 (381)	35 (206)
	Some College	23	27	50	100 (478)	20 (119)
	College Degree	26	25	48	99 (194)	21 (51)
	Advanced Degree	33	14	53	100 (58)	33 (28)
Average	High School or less	29	31	40	100 (252)	25 (85)
	Some College	26	29	45	100 (554)	19 (134)
	College Degree	27	29	44	100 (435)	15 (74)
	Advanced Degree	30	25	45	100 (133)	18 (30)
High	High School or less	37	33	30	100 (106)	20 (27)
	Some College	28	36	35	99 (347)	11 (45)
	College Degree	28	32	40	100 (600)	9 (61)
	Advanced Degree	28	32	40	100 (394)	9 (37)

The first thing to note is a strong confirmation of the negative relationship between reading test scores and beliefs in the importance of tested intelligence. Looking at the "of more importance" column, the percentage values are higher at all levels of educational aspiration for those students with lower reading test scores.

An examination of educational aspirations shows us that something complicated is involved in the relationship between aspirations and judgments about the importance of tested intelligence. The data show that students at lower levels of reading test scores with higher aspirations say that tested intelligence is of less importance, while the high ability students, with similarly high aspirations, say intelligence is important for success in life. Thus, the relationship between aspirations and beliefs about the importance of tested intelligence moves in opposite directions for the students with high and low reading test scores. It does appear that those with high educational aspirations and higher levels of ability may be free to hold the view that intelligence is important for success in life; it is something that they possess, and they can generalize about its value beyond their desire for advanced education, to which it is clearly instrumental. Those students with high aspirations but with lower levels of ability may well be saying that for success in life, intelligence may not matter so much, even though there must be a concern about the role intelligence plays in their interim plans for higher education.

PERSONALITY CHARACTERISTICS

Fatalistic attitudes show a substantial association with stating that tested intelligence is important for success in later life. Tables 3.8.1–3.8.3 deposited with the NAPS present the data on this and other personality characteristics. Fatalism is correlated with other student characteristics shown to be tied to emphasizing the importance of intelligence, such as father's education and reading test scores, so we analyzed further by cross-tabulations and the relationship just described was maintained at each level of father's education or of reading test performance. Fatalism thus is an additional and independent correlate of beliefs in the importance of tested intelligence. It seems to us that the fatalistic young person invests the external world with events that influence the course of his own life, and over which he has little control. Given the premise that intelligence is something one has and only to a small degree can alter, tested intelligence falls into that realm of external influential facts of life setting the destiny of the student.

As for the other personality variables, we find only that the respondent scoring at the elite end of the elitism-equalitarian dimension has distinctive beliefs about tested intelligence, and we find him giving substantially more credit to tested intelligence as a factor in later life's success. This is to be expected, of course, since this student values individual variability as manifested in persons of high and low intelligence, sees the world as recognizing and rewarding, or perhaps that it should so recognize and reward, those persons who measure high in ability.

4

Experiences with Tests

EXPERIENCES in the young person's life with tests of intelligence are of two main kinds; namely, with standardized intelligence tests in secondary school and with tests taken in connection with entrance to college. As we report the distribution of experiences, we wish to stress again that the referent of the word "tests" is broad and varied among this population of students, and what is reported here involves the student's subjective definition of what a test is; it is not a reflection of fact necessarily, for if one had the omniscience to count all instances of secondary school experiences with intelligence tests or college entrance examinations it would undoubtedly differ, and in unknown ways, from what is given here. Still, we have assumed that the referent of "tests" is not so loose or uncommon or idiosyncratic as to mislead one substantially about the distribution of experience in the population.

GENERAL FINDINGS

To ascertain the experiences of respondents with intelligence tests they were asked the following question: "To the best of your knowledge, have you ever taken an intelligence test?" The response distributions to this question provide some interesting information. Most striking is that the vast majority of respondents report having taken at least one intelligence test (Table 4.1). The percentage of respondents who report that they are sure they have *not* taken a test is about 3 per cent or less. It is clear, then, that to take an intelligence test is no longer an isolated experience but a national phenomenon. Yet while the use of tests is widespread, we still find strong school differences. As we go from public, through parochial, to private schools we find that the number of respondents who report several test experiences increases from 55 per cent, through 65 per cent, to 72 per cent. Or if we look at the respondents who report at least one or more test experiences, we find the proportions to be 78 per cent, 87 per cent, and 90 per cent, respectively. Conversely,

TABLE 4.1 Test-taking experience (Item 151): *"To the best of your knowledge, have you ever taken an intelligence test?"* (Item 169): *"To the best of your knowledge, have you ever taken a college entrance or scholarship test of any type?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Intelligence Test-Taking Experience:			
I am sure I have *not* taken one	3	1	1
I don't think so, but I am not sure	6	4	2
I think so, but I am not sure	8	6	5
Yes, at least once	23	22	18
Yes, several times	55	65	72
I do not know	5	2	1
TOTAL	100	100	99
	(5293)	(2625)	(1194)
No Response	(28)	(11)	(4)
College Entrance Test-Taking Experience:*			
I am sure I have not taken one	37	17	1
I think so, but I am not sure	14	7	1
Yes, at least once	31	30	3
Yes, several times	13	44	96
I do not know	6	2	0
TOTAL	101	100	101
	(2249)	(1210)	(594)
No Response	(7)	(7)	(0)

* Twelfth-grade students only.

the number of respondents who either are not sure or say that they do not know whether they took a test decreases as we proceed from public, through parochial, to private schools.

The data obtained are what we would expect, given our school systems. We know that the use of intelligence tests in the public school system is widespread, and that in the parochial and especially the private schools their use is even more prevalent. As a matter of fact, most private schools require some kind of intelligence test as an admission procedure, and this fact alone could account for the differences found between schools.

The second question asked was whether the respondents had ever taken a college entrance or scholarship test of any kind. The question is not appropriate for the tenth-graders in our sample and we present in Table 4.1 distributions for twelfth-graders only. It becomes quite clear that school differences in test-taking experiences are even stronger than on the previous item. For example, the proportion of twelfth-graders who report having taken several college entrance examinations is 13 per cent in the public school, 44 per cent in the parochial, and 96 per cent in the

TABLE 4.2.1 Test-taking experience (intelligence tests) (Item 151) and social background variable

	Public School Students					
	Test-taking experience:					
	Several %	*Once* %	*Not Sure* %	*None* %	*Don't Know* %	*Total* % (f)
Father's Education: ($p < .001$)						
High School or less	49	24	16	4	6	99 (2584)
Some College	59	21	12	3	4	99 (1490)
College B.A.	64	23	9	2	2	100 (571)
Advanced Degree	61	25	8	2	4	100 (548)
Sex: ($p < .001$)						
Male	54	23	13	3	7	100 (2414)
Female	55	24	14	3	4	100 (2851)
Age: ($p < .001$)						
10th Grade	53	21	16	4	6	100 (3017)
12th Grade	57	27	11	2	3	100 (2248)
Race: ($p < .001$)						
White	56	23	13	3	5	100 (4802)
Negro	41	29	21	6	4	101 (336)
Religion: ($p < .01$)						
Protestant	57	24	12	3	4	100 (2677)
Catholic	58	23	13	2	4	100 (1148)
Jewish	69	21	6	0	4	100 (199)

private school. Conversely, 37 per cent of the respondents in the public school report being sure they had *not* taken such a test; in the parochial school this proportion is 7 per cent, and in the private school it drops to less than 1 per cent. These findings confirm our expectations.

Our data indicate that test-taking is a very common experience these days. However, while it is a common experience it is still far from being a certain experience. Are there groups in our society for whom test taking is not as common as it is for others? If so, who are these groups? Are there other variations in the amount of test taking experiences, and what are the factors which contribute to the variation?

SOCIAL BACKGROUND CHARACTERISTICS

Father's Education

Let us begin with a consideration of the effects of social class on test-taking experience. There can be little doubt that this variable, as measured by father's education, is related to major differences in this kind of experience (see Table 4.2.1; also Tables 4.2.2–4.2.6 deposited with the NAPS). Findings are parallel for intelligence test taking experience and

the college entrance tests.[1] In each case the higher the father's education, the more likely the student is to report having taken several tests.

Because of the correlation between reading test scores and father's education, and because it is more likely, as we see later, that students with high reading test scores will have taken more standardized tests, it was important to find out whether the education of the father had an independent association with test experience. Accordingly, in the public and parochial schools, where the range on these variables was great enough to permit the analyses, we controlled for reading test scores and re-examined the relationship. The finding is maintained in both types of schools at each reading test score level, except at the very lowest in the public schools. Thus, we find that regardless of the level of ability, as measured by the reading test, the higher the education of the father, the more frequently students report intelligence test and college entrance test experience. This is, then, a class-linked phenomenon apart from the abilities of the student (see Tables 4.3.1–4.3.4 deposited with the NAPS).[2]

Sex

In the public schools there are virtually no differences between the males and females in experience with intelligence tests. The distributions (see Table 4.2.1; also Tables 4.2.2–4.2.6 deposited with the NAPS) in this instance do show a statistically significant difference, but the percentage differences are so small as to be unimportant. However, both in the parochial and the private schools we find that males tend to report more frequent test-taking experiences. In part this is compensated by the fact that more females than males report only one such experience; females also report more frequently than males that they are not sure whether they ever took a test. How might we account for this discrepancy in test-taking experience?

Test-taking is not a totally passive experience, as we know from common sense and as we see from later material. The chances for taking intelligence tests may be willfully increased and may be related to certain activities that a person seeks. Certainly the student with high levels of educational aspiration is bound to come in contact with tests more frequently than one with no such ambitions. We know from our analysis of the relationships between these factors (Appendix B, Part Two) that educational aspiration is quite strongly and positively related to being male, both in the parochial and private schools, but not in the public schools. This finding reported above thus may simply reflect the higher

[1] All cross-tabulations involving the college entrance tests are based on twelfth-grade students only.

[2] An attitude study (Tesser and Leidy, 1968) of a national sample of high school students which involves some questions about intelligence testing showed that "it is clear that as socioeconomic status goes up, exposure to test increases." (Note that this is student self-reported exposure.)

educational aspiration of the males in these two types of schools. However, a check on this possibility reveals that parochial and private school males report more frequent intelligence test-taking experience than do females at each level of educational aspiration, indicating that in these types of schools being male is independently associated with greater frequency of testing (see Tables 4.4.1 and 4.4.2 deposited with the NAPS).

Where college entrance tests are concerned, comparisons between the private school boys and girls were not made because the experience is almost universal. In the parochial schools, males again report more experience, as they did for intelligence testing. However, in the public schools, the girls report significantly more experience than the boys, thus confirming the significant but very slight differences favoring the public school females in intelligence test-taking experience. Holding level of educational aspiration constant, we find that twelfth-grade females report more college entrance test experience than males in the public schools in all groups except those who aspire to "high school or less"; among these students, there is no sex difference. In the parochial schools, males report more frequent college entrance test experience at the highest level of educational aspiration ("advanced degree") and at the lowest level ("high school or less"). The sex difference is reversed for those students who aspire to "some college" or "college B.A.," with females reporting more college entrance test experience (see Tables 4.5.1 and 4.5.2 deposited with the NAPS). In general, then, the males in the parochial and private schools and the females in the public schools report more experience with intelligence and college entrance tests.

Age

As one would expect, there is a slight increase in reported testing experience with age, that is, an increase from the tenth to the twelfth grades (see Tables 4.2.1; also Tables 4.2.2–4.2.6 deposited with the NAPS). However, this difference is significant only in the public schools, implying experience with tests occurs earlier in the parochial and private schools. In regard to college entrance tests we have already noted the expected difference between the tenth and twelfth grades in this kind of experience.

Race and Religion

Differences in race and religion ocurred in sufficient numbers to make statistical tests of association with test exposure only in the public school students. The data show that white students report more frequent intelligence test experience than do Negro students at all levels of father's education except "college or more," where the extremely small number of Negroes (17) leaves interpretation questionable (see Table 4.6.1 deposited with the NAPS). Holding reading test score constant, white

students report more experience with intelligence tests than do Negro students at the low reading test score level. There are virtually no differences at the average and high reading test score levels—where there are also very few Negroes in our study (see Table 4.6.2 deposited with the NAPS).

Jews, more than others, report experiences with tests. The correlation with father's education and with reading test scores may be the underlying cause. (We did not do controlled analyses here.) In addition, the traditional interest of Jews in intellectual achievements may have led to voluntary 'ncreased test exposure.

READING TEST SCORES AND EDUCATIONAL ASPIRATIONS

The next two characteristics of the respondents to be related to their experiences with tests are their scores on the reading comprehension test and their educational aspirations. The analysis shows (Tables 4.7.1 and 4.7.2) that those students with higher reading test scores and higher educational aspirations report more frequent experience with intelligence tests. The picture with reference to college entrance examination experience is the same, except for private school students, and very likely this is because of the restriction of range on the variables.

It is interesting to note the difference in these two kinds of reported test experience in relation to ability and aspiration. Very few respondents, even in the lowest decile reading test scores, report no experience with intelligence tests, but in the case of the college entrance examinations the less able and noncollege bound student is likely never to have taken college entrance tests. Moreover, there is a high proportion of medium and high scoring students on the reading tests in the twelfth grade in the public schools who report *no* college entrance test taken (39 per cent and 16 per cent, respectively). Perhaps this is a consequence of the time of year when the survey was made, namely, in the fall of the academic year. But the data do lead us to raise the possibility that many able students in the public schools still never get to take a college entrance test.

Table 4.7.2 indicates striking differences among the types of schools in this regard, and the question particularly arises as to why the high ability public school students were not *all* encouraged to have a try at the college entrance examinations. (In these days of frequent scholarships the lack of funds to attend college cannot be the whole reason.) Also note that the high ability public high school students were much less likely to have had more than one opportunity to take college entrance tests than their opposite numbers in the parochial and private schools. The respective figures for more than one exposure are 30 per cent, 64 per cent, and 96 per cent. The same trends are there for the medium ability students.

TABLE 4.7.1 Test-taking experience (intelligence tests) (Item 151) by reading test score and educational aspiration

	Intelligence test-taking experience:						
	Several %	*Once* %	*Not Sure* %	*None* %	*Don't Know* %	*Total* %	(*f*)
	Public School Students						
Reading Test Score: ($p < .001$)							
Low	43	26	19	4	8	100	(1540)
Medium	60	23	12	2	4	101	(1711)
High	67	22	7	2	2	100	(1621)
Educational Aspiration: ($p < .001$)							
High School or less	41	24	20	5	9	99	(1247)
Some College	55	23	14	3	4	99	(1793)
College B.A.	62	23	10	2	2	99	(1450)
Advanced Degree	64	24	6	2	4	100	(701)
	Parochial School Students						
Reading Test Score: ($p < .001$)							
Low	47	27	18	1	5	98	(423)
Medium	60	25	12	0	2	99	(788)
High	75	18	6	0	1	100	(1344)
Educational Aspiration: ($p < .001$)							
High School or less	38	29	22	3	7	99	(259)
Some College	57	26	14	1	3	101	(695)
College B.A.	71	20	7	0	1	99	(1090)
Advanced Degree	76	17	6	0	1	100	(561)
	Private School Students						
Reading Test Score: (n.s.)							
Low	—	—	—	—	—	—	(18)
Medium	63	24	11	1	1	100	(166)
High	74	17	6	1	1	99	(996)
Educational Aspiration: ($p < .001$)							
High School or less	—	—	—	—	—	—	(9)
Some College	61	19	14	6	0	100	(70)
College B.A.	71	21	7	0	1	100	(508)
Advanced Degree	75	16	6	2	1	100	(595)

It certainly seems to us that we are left with a picture of a public secondary school system that fails to identify and/or encourage a wastefully high proportion of its best students to aspire to higher education.

PERSONALITY CHARACTERISTICS

The half-dozen personality characteristics described in Appendix B (identity confusion, fatalism, introspective self-concern, self-confidence,

TABLE 4.7.2 Test-taking experience (college entrance tests) (Item 169) by reading test score and educational aspiration

	College entrance test-taking experience:					
	Several %	*Once* %	*Not Sure* %	*None* %	*Don't Know* %	*Total* % (f)
	Public School Students (12th Grade)					
Reading Test Score: ($p < .001$)						
Low	4	22	15	50	9	100 (705)
Medium	9	34	13	39	4	99 (674)
High	30	42	10	16	3	101 (670)
Educational Aspiration: ($p < .001$)						
High School or less	1	12	17	59	12	101 (500)
Some College	5	26	18	46	6	101 (819)
College B.A.	22	47	9	19	3	100 (578)
Advanced Degree	37	45	6	9	3	100 (323)
	Parochial School Students (12th Grade)					
Reading Test Score: ($p < .001$)						
Low	15	30	15	35	6	101 (230)
Medium	36	34	8	20	2	100 (368)
High	64	28	3	5	0	100 (576)
Educational Aspiration: ($p < .001$)						
High School or less	3	12	13	64	7	99 (104)
Some College	19	32	15	30	5	101 (349)
College B.A.	56	37	3	4	1	101 (490)
Advanced Degree	74	21	1	4	0	100 (261)
	Private School Students (12th Grade)					
Reading Test Score: (n.s.)						
Low	—	—	—	—	—	— (13)
Medium	96	2	1	1	0	100 (93)
High	96	3	0	1	0	100 (482)
Educational Aspiration: (n.s.)						
High School or less	—	—	—	—	—	— (3)
Some College	88	3	6	3	0	100 (33)
College B.A.	97	2	0	1	0	100 (240)
Advanced Degree	96	3	0	1	0	100 (316)

self-esteem, and intellectual elitism-equalitarianism) may bear some relationship to experience with tests for at least two reasons. Often test-taking requires personal initiative. Although the use of tests in schools in a routine way may be imposed upon the student without his interest or enthusiasm, more than ordinary experience with intelligence tests and, to some extent, any taking of college entrance examinations reflect initiative on the part of the student to take these tests. Since

motivational factors are involved, then personality characteristics of the students may well be associated with differential experience.

Moreover, some of these personal characteristics are, as we know from our analyses, related to standardized intelligence test scores, educational aspirations, and the socioeconomic status of the student. Since we know these properties are associated with test experience, we should expect to find relationships between experience with tests and these personality characteristics at least because of their association with intelligence and social class.

Of the personality factors investigated, only two relate significantly to test-taking experience (see Tables 4.8.1 and 4.8.2 deposited with the NAPS). Respondents low in fatalism report more test-taking experience for both intelligence and college entrance tests than do those students high in fatalism. Second, high self-esteem is tied to more experience with tests. Both of these are strongly related to intelligence and social class and so we would expect them to appear here as correlates of test-taking experience. But we also know in other analyses, for example in Chapter 7, that fatalism makes an independent contribution to beliefs and attitudes about intelligence and tests, and this may be the case here.

An analysis of the effect of fatalism with father's educational level and reading test score held constant indicates that in the public school groups, extent of fatalism makes a difference in the amount of test-taking experience reported primarily for those from the low reading test score group and those from the lower levels of father's education. We find that high fatalists in the low reading test score group are much more likely than low fatalists to say they are "not sure" whether they have taken an intelligence test. Among parochial school students, low fatalism appears to be associated with more frequent test-taking experience in all but one group—average reading test score, high father's educational background—where the effect is reversed, paralleling a slight reversal for the same group in the public schools. Overall, it seems that fatalism exerts some independent influence on extent of intelligence test experience reported by students, and moreover that the degree of influence varies with the student's level of tested ability and father's educational background (see Tables 4.9.1–4.9.6 deposited with the NAPS).

A similar analysis of the effect of self-esteem on reports of test-taking experience indicates that high self-esteem also is associated with more frequent test-taking experience in the public schools primarily for students who have low or average reading test scores and are from the lower levels of father's educational background. Among parochial school students, high self-esteem is associated with more frequent test experience in all but one of the groups. Self-esteem appears to have least effect for those students whose fathers are high school graduates compared

with low or high father's educational background (see Tables 4.10.1–4.10.6 deposited with the NAPS). Again we can say that self-esteem exerts an independent influence on reporting of test-taking experience, but that the extent of influence depends on reading test score and father's educational background.

5

The Accuracy of Intelligence Tests

BELIEFS about the accuracy of intelligence tests, in general, and of one's own test results, in particular, are the topics treated in this chapter. We treat these two beliefs separately in this chapter, because although students who view intelligence tests, in general, as inaccurate also are more likely to state that their own test scores either overestimate or underestimate their own intelligence. However, a substantial percentage of students who view their own test scores as inaccurate still say that intelligence tests, in general, are accurate (see Table 5.1). Continuing with the pattern established in the previous chapters, we begin our discussion by examining the distribution of beliefs generally, and then examine the relationships to three classes of independent variables; social background, ability and aspirations, and personality characteristics.

THE ACCURACY OF INTELLIGENCE TESTS GENERALLY

General Findings

Student respondents were asked: "Which of the following best expresses your opinion about the accuracy of intelligence tests?" Five alternatives were provided as an answer to this question: "Tests are very inaccurate," "Tests are somewhat inaccurate," "Tests are somewhat accurate," "Tests are very accurate," and "I have no opinion about this."

The data presented in Table 5.2 show that there is some disagreement among students as to the accuracy of intelligence tests. About 10 per cent of our respondents (16 per cent in the public schools) offered no opinion about their accuracy. Among those respondents who did evaluate

TABLE 5.1 Beliefs about the accuracy of intelligence tests (Item 61) by respondents' evaluations of the accuracy of their own intelligence test results (Item 155)*

	Public School Students			
	Intelligence tests are:			
	Inaccurate %	*Accurate* %	*Total* % (f)	*Don't Know* % (f)
As a reflection of my real intelligence, test results are: ($p < .001$)				
Lower	32	68	100 (1106)	10 (128)
Accurate	11	89	100 (1092)	8 (101)
Higher	25	75	100 (181)	11 (22)

* Respondents with no opinion about the accuracy of intelligence tests (Item 61) have been eliminated from this table.

the accuracy of intelligence tests, we find that only a small proportion of the public and parochial school students felt that they were "very inaccurate." However, a sizable number of respondents in these schools (about 20 per cent) describe tests as "somewhat inaccurate." Private school respondents are decidedly more critical of intelligence tests: 11 per cent believe that they are very inaccurate and an additional 29 per cent believe that they are somewhat inaccurate.

What are the sources of this substantial difference in opinion between students enrolled in the public and private schools? We know that the standing of the private school students, both in terms of social class and intellectual ability, is much higher than that of the public school students, and we later demonstrate that both of these characteristics are related to negative attitudes about the accuracy of intelligence tests. However, while class and ability differences are consistent with the variations in attitudes between schools, we shall see that they are not sufficient to explain them.

Another possible source of the difference between schools would come from the attitudes of teachers themselves toward tests. As we see later (Chapter 9), in the majority of cases students are given information about testing results by their teachers or guidance counselor. These individuals may help to shape students' attitudes by communicating, at some level, their feelings about tests. Indeed, Goslin's recent survey (*Teachers and Testing,* 1967) of these school personnel clearly demonstrates that private school teachers were far less confident of the accuracy of intelligence tests than were public or parochial school teachers.

The more critical reaction among private school students may stem from a higher level of sophistication and awareness possessed by students enrolled in college preparatory institutions of the very first rank. These students, we think, should be generally more aware of the attacks

TABLE 5.2 Beliefs about the accuracy of intelligence tests (Item 61): *"Which of the following best expresses your opinion about the accuracy of intelligence tests?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Tests are very accurate	12	7	3
Tests are somewhat accurate	66	67	57
Tests are somewhat inaccurate	18	21	29
Tests are very inaccurate	4	5	11
TOTAL	100 (4454)	100 (2363)	100 (1078)
No Opinion	16 (850)	10 (261)	10 (118)
No Response	(17)	(2)	(12)

on intelligence testing that have frequently appeared in the nation's press and mass media over the past few years. Thus, the somewhat larger concentration of critical attitudes among private school students may also be an indication of the greater impact that these criticisms have had on this group.

Social Background Characteristics

1. *Father's Education.* The relationship between father's education and beliefs about the accuracy of intelligence tests is presented in Table 5.3.1. In the public schools, the belief that tests are "very accurate" is more common at the lowest level of father's education than it is at the highest level (16 vs. 5 per cent), while correspondingly, the belief that tests are inaccurate increases as we move from lower to higher levels of education ($p<.001$). The same negative correlation between education and belief in the accuracy of intelligence tests occurs for the parochial school students ($p<.05$). On the other hand, there is no significant association in the private school students, perhaps because of the restriction in the range of father's education in these schools.

2. *Sex.* In each of the three student groups being male or female makes virtually no difference regarding the distribution of beliefs about the accuracy of intelligence tests.

3. *Grade Level.* Even within the narrow range of this variable represented by a sampling of tenth and twelfth-grade students we find some striking differences in attitude. Twelfth-grade respondents are more skeptical about the accuracy of intelligence tests than are tenth-graders. Highlighting the major differences, we see that in the public schools (Table 5.3.1) fewer twelfth than tenth-grade students (8 vs. 15 per cent) believe tests are very accurate measures of intelligence ($p<.01$).

TABLE 5.3.1 Beliefs about the accuracy of intelligence tests (Item 61) by social background variables

	Public School Students				
	Intelligence tests are:				
	Inaccurate %	*Somewhat Accurate* %	*Very Accurate* %	*Total* % (*f*)	*No Opinion* % (*f*)
Father's Education: ($p < .001$)					
Less than 12th Grade	19	65	16	100 (2121)	18 (472)
High School Graduate	23	67	10	100 (1269)	15 (221)
Some College	27	65	9	101 (504)	12 (69)
College or more	24	70	5	99 (483)	12 (65)
Sex: (n.s.)					
Male	23	65	13	101 (2008)	17 (416)
Female	22	67	12	101 (2423)	15 (430)
Age: ($p < .01$)					
10th Grade	21	65	15	101 (2463)	19 (564)
12th Grade	24	68	8	100 (1968)	12 (282)
Race: ($p < .001$)					
White	22	68	10	100 (4062)	16 (748)
Negro	17	48	35	100 (272)	20 (70)
Religion: ($p < .05$)					
Protestant	22	70	8	100 (2347)	12 (334)
Catholic	23	63	14	100 (964)	16 (185)
Jewish	31	62	6	99 (181)	9 (18)

TABLE 5.4 Beliefs about the accuracy of intelligence tests (Item 61) by race of respondent controlling for father's education

	Public School Students				
	Intelligence tests are:				
Father's Education	*Inaccurate* %	*Somewhat Accurate* %	*Very Accurate* %	*Total* % (*f*)	*No Opinion* % (*f*)
Less than 12th Grade					
White	20	67	13	100 (1893)	18 (408)
Negro	12	48	40	100 (176)	21 (48)
High School Graduate					
White	23	68	9	100 (1188)	15 (202)
Negro	19	49	32	100 (57)	21 (15)
More than 12th Grade					
White	25	71	4	100 (939)	12 (122)
Negro	34	48	18	100 (29)	19 (7)

In the parochial schools, more of the twelfth (30 per cent) than tenth-grade respondents (23 per cent) describe tests as inaccurate ($p<.001$). The private school results present a nonsignificant trend in this direction.

4. *Race.* Given the status of a minority group and the existence of racial discrimination, intelligence is probably a more important factor in the attainment of success in life for Negroes than it is for whites. Intelligence tests, to the extent that they are seen as providing a channel of competition free from bias, should be regarded most favorably by Negro respondents. On the other hand, one of the chief criticisms of the tests has been their supposed unfairness toward culturally different individuals and minority groups generally. The data reported below make it evident that the social position of black students is a very important consideration in attempting to account for variation in their attitudes.

Analysis of racial differences in attitude required the application of a control for father's education. The relationship between race and beliefs about test accuracy is presented in Table 5.4. Three levels of father's education are presented. The small number of Negroes at the upper level (29) causes us to examine only the two lower levels of father's education, namely, the high school graduate and less than twelfth grade, where the numbers are larger. Here in both instances many more Negro than white respondents describe the tests as "very accurate" and fewer Negro than white respondents feel that they were "inaccurate." Thus, the Negro beliefs about test accuracy are not simply an effect of social class background.

5. *Religion.* There were no significant relationships between the respondents' religious affiliation and their views about intelligence test accuracy, except in the public schools where at the .05 level of significance we find a greater proportion of Jewish than either Protestant or Catholic respondents who viewed intelligence tests as inaccurate. A similar pattern appears in the private school results (see Table 5.3.3 deposited with the NAPS).

Reading Test Scores and Educational Aspirations

The associations between reading test scores and beliefs about accuracy do not present a consistent picture across the three school types (see Table 5.5.1; also Tables 5.5.2–5.5.3 deposited with the NAPS). In the parochial schools, there is no relationship to speak of. In the public schools, the relationship is inverse and significant. More of the low than high reading test score respondents view tests as very accurate, while correspondingly fewer lows than highs judge them to be inaccurate. This same relationship holds for educational aspiration. However, the relationship goes in the other direction in the private schools, with those students having high reading test scores being less likely, rather than more likely, to view tests as somewhat inaccurate.

TABLE 5.5.1 Beliefs about the accuracy of intelligence tests (Item 61) by reading test scores and educational aspiration

	Public School Students				
	Intelligence tests are:				
	Inaccurate %	*Somewhat Accurate* %	*Very Accurate* %	*Total* % (*f*)	*No Opinion* % (*f*)
Reading Test Scores: ($p < .001$)					
Low	19	63	17	99 (1212)	22 (322)
Average	24	66	10	100 (1444)	16 (265)
High	24	71	6	101 (1485)	9 (140)
Educational Aspiration: ($p < .001$)					
High School or less	20	60	20	100 (921)	26 (327)
Some College	22	67	11	100 (1527)	15 (269)
College B.A.	22	70	8	100 (1279)	12 (166)
Advanced Degree	23	67	9	99 (634)	10 (69)

The reversal of these data and the possibility of confounding influences from father's education with reading test levels led us to a controlled analysis. The results are presented in Tables 5.6.1 and 5.6.2 deposited with the NAPS. (The analysis was not made of the private school data because of the small number of cases in the low education and low reading test score cells.) We see that for both public and parochial school students, at both levels of father's education, the students with low reading test scores are more likely to report that the tests are very accurate. The private school students seem to be a special case.

We know that private school teachers place far less confidence in the accuracy of intelligence tests than do teachers in other schools, although private school students are given more tests. This backs up a general tendency in private schools to reassure youngsters who are not of top ability (and their parents) that "tests aren't everything," that "your child has important qualities of mind and spirit or we wouldn't have accepted him in the first place." In other words, average scorers in the private schools (who more often say that tests are inaccurate than do high scorers in private schools) are—according to our data—likely to be children of higher social class parents who have been accepted at the private school despite their only average abilities. And they and their parents are the ones who receive constant reassurance from teachers and headmasters that mediocre test scores are really not too much to worry about. (These average scorers are, of course, the "low" scorers in the private school setting.) No such reassurance is given the low scorer in the public school. In fact, it seems probable that low scorers are relatively unin-

formed about the nature of tests (22 per cent of the low reading test scorers and 16 per cent of average reading test scorers in the public schools would not venture an opinion on this question). High scorers in the private schools reflect some of this general private school downgrading of the tests, but are much freer to impute some accuracy to tests since their own test scores to some extent back up the image which they, their parents, and the school have of their abilities.

Now let us look more closely at the relationship of aspirations to judgments about the accuracy of intelligence tests. We have already seen that both father's education and reading test scores are inversely related to beliefs that tests are accurate. We have seen that this is true for educational aspiration also; that is, the lower the aspiration, the more likely one is to say that tests are "very accurate." However, the correlation of aspirations to both of the above-mentioned variables suggests that more detailed analyses are necessary if we are to see if the relationship for aspirations is an independent one. Tables 5.7.1 and 5.7.2 deposited with the NAPS present the analyses involving aspirations and reading test scores, and Table 5.8 deposited with the NAPS (for public school students only) presents the analysis involving father's education and aspirations. We find in these data the following:

First, we see again that as reading test scores go down, regardless of level of aspiration, the tendency is for students to report that intelligence tests are "very accurate." We see also that, regardless of level of aspiration, at the lower level of father's education the tendency is to view tests as "very accurate."

As for aspirations, we see that at all three levels of reading test scores, and at both levels of father's education, the student with the lower educational aspiration is more likely to say that intelligence tests are "very accurate"; conversely, it is the student with higher aspirations, controlling for reading test score and for father's education, who is less likely to state that tests are very accurate, and some are more likely to say they are inaccurate. It seems to us that this relationship may reflect an attempt of students to reconcile their higher aspirations with possible undesirable information about their abilities by saying that intelligence tests are not very accurate. That is, good performance on tests in many instances is a necessary condition for entrance into college and to graduate or professional schools, while poor performance clearly hinders the student's chances to obtain these objectives. This is especially in evidence in the group of low reading test scorers. The conflict between what the test results show, or may show, and what one aspires to, may be at the root of the judgment that the test results are inaccurate, with the student taking this solution to the conflict rather than lowering his educational aspirations.

Personality Characteristics

The results of the analyses of personality in relation to judgments about test accuracy show the following results (Tables 5.9.1–5.9.3 deposited with the NAPS). No relationships were found in the private school student body, but for the public and parochial school students, those who were high in fatalism and high in self-confidence were more likely to say tests were very accurate and less likely to say they were somewhat inaccurate. Those students high in identity confusion and more equalitarian on our index of elitism-equalitarianism were more likely to say tests were inaccurate. The percentage differences in all cases, while statistically significant, were small. It is unusual in the analyses to see both fatalism and self-confidence operating in the same direction. Usually these are associated in opposite directions with dependent variables, and are correlated in opposite ways with key factors such as reading test scores and father's education. For this reason, the findings for fatalism make sense in terms of the pattern of relationships of its correlates. (The data on fatalism were subjected to analyses controlling for both levels of father's education and reading test scores, and in every instance the same relationship was maintained.) As for the self-confidence factor, we take it at face validity: those who are confident see tests as accurate and those who lack self-confidence would view tests as inaccurate. Regarding identity confusion, the respondent higher in this characteristic would also tend to be unsure about the accuracy of intelligence tests, lacking a stable conception of his own abilities.

THE ACCURACY OF THE STUDENTS' OWN INTELLIGENCE TEST RESULTS

We now turn to the beliefs of our respondents about the accuracy of their own test results. Students were asked the question: "Do you think your performance on standardized intelligence tests accurately reflects your real intelligence?" Five response alternatives, ranging from "much lower than my real intelligence," through "accurately reflect my real intelligence," to "much higher than my real intelligence" provide the dimension on which respondents could evaluate the accuracy of their own intelligence test scores. One additional response category, "I have no opinion," was also provided. A second item, parallel in its wording, was included in the section of the questionnaire dealing with college entrance tests to inquire about students' evaluations of the accuracy of results obtained from this type of test. The distributions for both the intelligence and college entrance test questions are shown in Table 5.10.

Less than one-half of the respondents in each school group, about 45 per cent, described their intelligence test scores as accurate measures of their real ability. Almost 50 per cent felt that the results of their intelli-

gence test underestimated their true intelligence. In Chapter 7, on self-estimates of intelligence, we report that most students rate their own intelligence as above average, so this finding is congruent with the general tendency of the students to upgrade their beliefs about their own intelligence level. Evaluations of the accuracy of college entrance tests as a measure of respondents' "real intelligence" are generally similar to those just given for intelligence tests.[1] The data suggest a difference in reactions to those two types of tests, in that respondents tend to be even more critical of their college entrance test scores. However, evaluations of intelligence tests were provided by both tenth and twelfth-grade students, while only the twelfth-grade students' evaluations are considered in the case of the college entrance tests. As we shall see, the twelfth-graders generally were more critical in evaluating the accuracy of their own intelligence test scores and so the difference here regarding the two kinds of tests may reflect little more than the associated difference in respondents' grade level.

We see two things here in comparison to the judgments about the accuracy of tests in general. First, it seems that more students view their own test results as accurate than they do the results of "intelligence tests in general." Second, the results show little difference between the three types of schools, whereas on the question about accuracy of tests, in general, we found that the private school respondents were more critical than were those in the other schools.

Social Background Characteristics

Father's Education. The one significant relationship ($p<.001$) between father's education and respondents' evaluations of the accuracy of their own intelligence test results occurs in the parochial schools (see Tables 5.11.2–5.11.3 deposited with the NAPS; also public school data in Table 5.11.1). Here, low father's education is strongly associated with the feeling that test scores underestimate respondents' intelligence, while high father's education respondents more frequently view their test scores as accurately measuring or overestimating the true intelligence. The results for the public and private schools do not confirm these findings so that no definite conclusions can be drawn.

Sex. As was true of attitudes toward accuracy of intelligence tests generally, being male or female makes virtually no difference. In Chapter 7, we show that male self-estimates of intelligence are higher than those of females, so one might have expected more males to say that test scores

[1] Evaluations of information from intelligence tests and any college entrance tests were so highly redundant (contingency coefficient = .62 in the public schools) that in this chapter we focus on attitudes toward standardized intelligence tests alone. Moreover, this item was answered by a much larger proportion of our respondents than the one pertaining to college entrance information.

TABLE 5.10 Beliefs about the accuracy of own test results as an estimate of intelligence (Items 155 and 196): *"Do you think your performance on standardized intelligence (college entrance) tests accurately reflects your real intelligence?"*

	Secondary School Students					
	Public %		*Parochial* %		*Private* %	
As a reflection of real intelligence, test scores are:	*Intelligence Tests*	*College Entrance Tests**	*Intelligence Tests*	*College Entrance Tests**	*Intelligence Tests*	*College Entrance Tests**
Much lower	18	18	15	18	15	18
Slightly lower	29	37	30	40	32	41
Accurate	45	40	45	36	43	37
Higher	8	5	10	5	10	4
TOTAL	100	100	100	99	100	100
	(2658)	(745)	(1635)	(865)	(603)	(519)
No Opinion	40	34	32	23	46	24
	(1807)	(392)	(775)	(256)	(503)	(163)
No Response; Does Not Apply**	(856)	(4184)	(226)	(1515)	(92)	(516)

* Twelfth-grade students only.
** Respondents who reported that they had not taken either type of test were not permitted to answer these questions.

underestimate their true intelligence. From other data also one might have surmised that males might have been more critical, but this clearly is not confirmed.

Grade Level. The relationship of grade to judgments about one's own intelligence test score accuracy shows that in all three schools twelfth-graders are more likely to say that tests underestimate their true intelligence, while tenth-graders are more likely to say that test results are higher than their real intelligence. These differences are significant in both the parochial and the private schools. Thus, the same attitudes about test accuracy prevail for personal test results as well as intelligence tests generally, in that in both cases the twelfth-grade group is more critical of the test accuracy.

In Chapter 7 we see that the twelfth-graders have higher self-estimates of intelligence than the tenth-graders, and thus may be more likely to say that the tests underestimate what they believe to be their intelligence. But in addition to this, the more critical attitude, both toward their own test scores and intelligence tests generally, would seem to come from the fact that because of its central role in the scramble for higher education after secondary school, and for occupational plans, testing is a much more critical event for the senior than for the sophomore. Test scores are potentially more frustrating to the plans of the seniors, the nature of tests is presumably more salient for them, and they attend to the character-

TABLE 5.11.1 Beliefs about the accuracy of own intelligence test results (Item 155) by social background variables

	*Public School Students**				
	As a reflection of real intelligence, tests' estimates are:				
	Lower %	*Accurate* %	*Higher* %	*Total* % (*f*)	*No Opinion* % (*f*)
Father's Education: (n.s.)					
Less than 12th Grade	46	45	9	100 (1211)	42 (885)
High School Graduate	47	46	7	100 (773)	40 (505)
Some College	50	45	6	101 (326)	38 (201)
College B.A.	45	48	8	101 (305)	38 (185)
Sex: (n.s.)					
Male	46	45	9	100 (1256)	37 (772)
Female	47	46	7	100 (1380)	44 (1074)
Age: (n.s.)					
10th Grade	45	47	8	100 (1425)	42 (1017)
12th Grade	49	44	7	100 (1211)	39 (779)
Race: ($p < .02$)					
White	46	46	8	100 (2410)	41 (1671)
Negro	58	35	8	101 (167)	35 (91)
Religion: (n.s.)					
Protestant	45	48	7	100 (1416)	40 (930)
Catholic	49	44	7	100 (609)	39 (382)
Jewish	44	44	13	101 (117)	38 (71)

* Respondents who answered the intelligence test experience question (Item 151) with "Don't know" or "Have not taken" are not included in this table.

istics of tests and become more critical. We know from Chapter 12 also that twelfth-grade students are more frequently opposed to using test scores as a basis for making decisions about people being placed in school or in jobs. Thus, the critical attitude of the twelfth-grader toward tests is evident here as well as in other aspects of his attitudes and beliefs.

Race. We can see from Table 5.11.1 that the white students view their own intelligence test results as accurate more frequently than do the Negro students, who are more likely to say the results are lower than their true intelligence. Controlling for father's education (Table 5.12 deposited with the NAPS), we find that this difference comes from the contrast in attitudes between Negroes and whites at the lower levels of father's education (where the predominant number of Negroes falls). Now we saw in the first part of our analysis, with reference to the accuracy of intelligence tests in general, that the Negro students, along with low scorers on the reading test, and persons from lower educational

TABLE 5.13.1 Beliefs about the accuracy of own intelligence test results (Item 155) by reading test scores and educational aspiration

	*Public School Students**				
	As a reflection of real intelligence, tests' estimates are:				
	Lower %	*Accurate* %	*Higher* %	*Total* % (f)	*No Opinion* % (f)
Reading Test Scores: ($p < .001$)					
Low	58	35	7	100 (662)	44 (513)
Average	52	41	8	101 (898)	40 (612)
High	33	60	8	101 (925)	39 (585)
Educational Aspiration: ($p < .001$)					
High School or less	48	43	9	100 (484)	48 (445)
Some College	51	41	7	99 (909)	40 (615)
College B.A.	45	47	7	99 (799)	38 (499)
Advanced Degree	38	53	8	99 (414)	35 (220)

* Respondents answering the intelligence test experience question (Item 151) with "Don't Know" or "Have Never Taken" did not evaluate the accuracy of test information, and are not included in this table.

background, more frequently believe in the accuracy of these tests in general. In sharp contrast, we find that the Negroes describe their own test results as being too low. Since we find this also to be the case for low scorers on reading tests, we defer any further remarks to the next section.

Religion. Religion was not associated with the students' judgment about the accuracy of their own intelligence test scores.

Reading Test Scores and Educational Aspirations

In the student population of all three types of schools, we find that the students with low reading test scores much more frequently say that their test scores underestimate their intelligence: in the public schools 58 per cent of this group, compared to only 33 per cent of the high reading test score respondents, so regard their reading test results (see Table 5.13.1; also Tables 5.13.2–5.13.3 deposited with the NAPS). But it was this group of students whose beliefs about the accuracy of intelligence tests in general were that tests were very accurate; they now report their own test scores as being too low. This is the same contrast we found for the Negro respondents just above and, one will recall, for the parochial school students with reference to the educational background of the father.

It is possible, indeed, that the test results do underestimate the true

level of ability of these respondents, and it is more likely the case for a larger number of the Negro students. Still, a more important reason may be the attempt on the part of the student to deal with information about his abilities which he does not like. Through a process of information reception and social comparison, an individual develops a conception of his abilities (Festinger, 1954; and Latané, 1966). But such a self-concept is not necessarily a true one; the evaluation of information may be distorted in the service of a desire for self-enhancement. Chapter 7, on self-estimates of intelligence, and Chapter 8, on the interactive effects of aspirations and self-estimates, present some interesting illustrative data on the way in which one estimates his intelligence. For the question at hand, the point can be made that for students who do not do well on tests but who desire to think of themselves as able, the solution is to view the contradictory test information as inaccurate.

Personality Characteristics

Considering first "identity confusion," the instability of self-concept that seems to characterize respondents with high scores on the identity confusion factor should also lead to doubts about the accuracy of the stable quantity—their own test results. Tables 5.14.1–5.14.3 deposited with the NAPS show that there is a tendency for respondents high in identity confusion to report more frequently that test results overestimate their intelligence, and are less likely to report them as accurate. These relationships are significant at ($p<.01$) in both the public and parochial schools.

High fatalism is associated with a point of view that one's own intelligence test results underestimate his ability. The relationships are small, reaching the .05 level of statistical significance in the public and parochial schools. (These effects were maintained even when a control was exercised for father's education and reading test performance, so there is a small but independent association here). Again, we find a reversal of attitudes, in that those high in fatalism ascribe more accuracy to tests in general, but here state that they underestimate their abilities.

In addition to these two characteristics, self-confidence shows relationships in the parochial and private schools, in that those low in self-confidence felt their test results overestimated their abilities, an interesting finding. And in the public and parochial schools, those low in self-esteem felt that their own test scores overestimated their abilities. (In the two absent school types in each case, the trends were in the same direction as for the others.) Both self-confidence and self-esteem are correlated with reading test scores; so we would have expected that on the basis of this tie to reading test scores, those low in confidence and esteem would say the test results underestimated their true intelligence; instead,

they say the opposite—that test results are too high. We can speculate that these students are concerned about their test results, and perhaps do not want to be put in a position of having people believe they are as bright as the test scores say, probably because they are anxious about their abilities to meet the higher expectations for performance which will follow, as the test scores designate them as brighter than they want to appear.

6

Attitudes Toward Taking Tests

☐ IN THIS CHAPTER we are primarily concerned with students' liking or disliking of tests, their feelings of confidence about taking tests, and their degree of nervousness or discomfort when they take tests. Positive and negative test-taking attitudes may stem from a variety of sources, including motivations for success, fear of failure, and various test anxieties. Prior research (for example, Sarason *et al.*, 1960) has shown that test anxiety may influence a person's performance by increasing his interest and motivation to do well on tests. However, the same research indicated that excessive amounts of anxiety may have just the opposite effect by producing decrements in performance. It is presently unclear whether other affective states (for example, anger or annoyance) would yield the same kind of curvilinear relationship. We can only say that there are a number of motives underlying the attitudes being discussed in this chapter, and our main concern is to show certain systematic relationships between these attitudes and various social background, personality, and ability characteristics.

To measure attitudes toward taking standardized tests of ability, we asked our respondents to describe: (1) "How they felt when they last took an intelligence test," and (2) "How they might have felt when they last took a college entrance examination." Nine descriptive items were included under each of these two general questions. Three of these items described positive responses to taking tests as follows: (1) "I enjoyed taking it," (2) "I found it an interesting challenge," and (3) "I felt confident." Five items described negative responses: (1) "I disliked taking it," (2) "I felt afraid," (3) "I felt nervous," (4) "I felt bored," and (5) "I felt annoyed." The affective character of the one remaining item, "did you care whether you took it?" was ambiguous, and for this reason the

item was not included in our analysis. Associated with each of these items was a choice between three alternative responses: "Yes," "No," and "Don't Remember."

GENERAL FINDINGS

In this section we present the response distributions for each of the test-taking items. Table 6.1 reports these data for intelligence tests. The majority of students said they found taking an intelligence test "an interesting challenge." But more than half of those who remembered said they did not "enjoy" the experience or "feel confident" about it. About half said they had felt "nervous." Fear, dislike, boredom, or annoyance was experienced by about one student in four. Note that there were slightly fewer private school students who expressed negative affect.

The same pattern of attitudes holds for taking college entrance tests (Table 6.2), although students indicated greater nervousness, fear, and dislike than for intelligence tests, and this was especially true for parochial and private school students. This result accords well with earlier data on respondents' attitudes toward the accuracy of their own test scores (see Chapter 5), since students believe that college entrance tests underestimate the individual's intelligence even more than do intelligence tests. It is also possible that the greater aversion to college entrance tests among parochial school students (particularly on the items dealing with "fear" and "nervousness") may stem from the fact that a higher proportion of parochial students with low and average reading test scores took college entrance examinations than was true for the comparable public school groups. (See Chapter 4.) Students were slightly more likely to say that taking college entrance examinations had been "an interesting challenge," but less likely to say they had "felt confident" or "enjoyed" the experience, compared with taking intelligence tests. Although many respondents do not report any feelings about taking tests, the tendency is generally in the direction of positive affect.

INDICES OF TEST-TAKING ATTITUDE

In constructing test-taking attitude indices, our aims were: (1) to simplify the analysis required of the several positive and negative items by treating them as a unit, and (2) to identify groups of students whose descriptions of their test experiences were clearly favorable or unfavorable. Fortunately, sample sizes were sufficiently large to permit elimination of cases in the interest of creating sharply defined attitude groups. For the first index, based on attitudes toward taking intelligence tests, the resulting numbers of cases in each sample were 2937 in the public schools, 1607 in the parochial schools, and 773 in the private schools. The secondary index, for college entrance tests, was based on the

TABLE 6.1 Responses to items 160–169, dealing with attitudes toward taking intelligence tests

	Secondary School Students		
	Public Schools (4470) %	*Parochial Schools (2425)* %	*Private Schools (1120)* %
Positive Attitude Items:			
1. Enjoyed Taking It			
Yes	41	38	36
No	45	48	50
Don't Remember	14	15	14
	100	101	101
2. Felt Confident			
Yes	37	41	39
No	48	45	48
Don't Remember	14	14	12
	99	100	100
3. Found It An Interesting Challenge			
Yes	62	62	54
No	29	29	37
Don't Remember	9	9	9
	100	100	100
Negative Attitude Items:			
1. Disliked Taking It			
Yes	25	26	20
No	69	68	74
Don't Remember	5	6	6
	99	100	100
2. Felt Afraid			
Yes	29	31	20
No	65	63	74
Don't Remember	6	6	6
	100	100	100
3. Felt Nervous			
Yes	46	49	40
No	48	45	54
Don't Remember	6	6	6
	100	100	100
4. Felt Bored			
Yes	29	26	24
No	64	63	69
Don't Remember	8	8	8
	101	100	101
5. Felt Annoyed			
Yes	20	21	28
No	70	69	64
Don't Remember	10	10	8
	100	100	100

TABLE 6.2 Responses to items 187–195, dealing with attitudes toward taking college entrance tests

	Secondary School Students		
	Public Schools (1140) %	*Parochial Schools (1120)* %	*Private Schools (685)* %
Positive Attitude Items:			
1. Enjoyed Taking It			
Yes	40	30	30
No	50	64	67
Don't Remember	10	7	3
	100	101	100
2. Felt Confident			
Yes	34	35	36
No	57	60	62
Don't Remember	9	5	2
	100	100	100
3. Found It An Interesting Challenge			
Yes	66	67	62
No	26	29	35
Don't Remember	8	4	3
	100	100	100
Negative Attitude Items:			
1. Disliked Taking It			
Yes	23	33	36
No	70	64	62
Don't Remember	7	3	2
	100	100	100
2. Felt Afraid			
Yes	38	43	34
No	55	54	64
Don't Remember	6	3	1
	99	100	99
3. Felt Nervous			
Yes	53	61	55
No	40	35	43
Don't Remember	7	4	1
	100	100	99
4. Felt Bored			
Yes	19	21	20
No	74	74	77
Don't Remember	7	4	3
	100	99	100
5. Felt Annoyed			
Yes	19	22	26
No	72	72	71
Don't Remember	9	6	3
	100	100	100

following numbers of cases: 817 in the public schools, 794 in the parochial schools, and 546 in the private schools.

In identifying these groups of respondents we used two main criteria for excluding cases. First, all students who said they did not know whether they had ever taken an intelligence or college entrance test were automatically excluded, since instructions in the student questionnaire did not permit them to answer those attitude items; second, we eliminated those students who gave a "Don't Remember" response to any of the eight positive and negative items. In the case of the "college entrance test index," we also eliminated all respondents who did not report being in the twelfth grade. This means that for the "intelligence test index," we excluded 2384 students from the public schools, 1029 from the parochial schools, and 425 from the private schools. For the college entrance tests we eliminated 4504 from the public schools, 1842 from the parochial schools, and 652 from the private schools.

The construction of the two indices consisted of separately summing responses to the five negative and three positive items and then calculating a difference score for each respondent. The percentage distributions of these scores were negatively skewed, positive attitudes being more common than negative attitudes, as can be seen in Table 6.3 deposited with the NAPS. The index thus preserves the general distributional characteristics of the individual items. To sharpen our analysis further, we trichotomized the distributions into (1) those students who scored in the lowest quartile and therefore showed a predominance of negative affect, (2) those who scored in the highest quartile and therefore showed positive reactions, and (3) a middle group made up of the combined second and third quartiles.[1] This latter group represents either the presence of both positive and negative reactions to test-taking, or the absence of these reactions. For this reason, our discussion of test-taking attitudes will focus on the unfavorable and favorable students in the extreme quartiles, the middle group representing a single indeterminate category.

Attitudes toward taking college entrance tests are, as one would expect, strongly related to attitudes toward taking intelligence tests. The contingency coefficients between the two indices are .58, .55, and .57, for the public, parochial, and private schools, respectively. Examination of the cell frequencies suggests that in the public schools, for example, over two-thirds of the respondents holding either a positive or a negative attitude toward taking one type of test also show the same direction of attitude toward taking the other type of test. Given this redundancy between the orderings of respondents established by the two indices, and the

[1] Following standard practice, cutting points were determined from an inspection of the score distribution of the public school respondents.

availability of data from a much larger proportion of our respondents for attitudes toward intelligence testing than for attitudes toward college entrance testing, our discussion concentrates on the former measure.

TEST-TAKING ATTITUDES AND BELIEFS ABOUT TESTS AND INTELLIGENCE

In this section we clarify the meaning of our specially constructed attitude indices by showing how they are related to other attitude measures that we have treated as dependent variables in prior chapters. We also include one new item (Item 238) inquiring into students' reactions to the amount of time they spend taking standardized tests, which seems particularly germane to the present analysis.

Our selection of the items just described was made for frankly intuitive reasons, judging that of the various attitude measures these were most likely to be related to the test-taking indices. Since the analysis is largely exploratory, we present data only for the public school students.

Beliefs About the Origins of Intelligence

Respondents with high levels of intelligence who believe that intelligence is inborn in contrast to being learned might be expected to hold more favorable attitudes toward taking tests that, according to some, provide a measure of inborn abilities. For the purposes of simplification, we collapsed the response categories associated with this item (Item 122) as follows: "Only and mostly inborn," "Inborn ability and learned knowledge equally," "Only and mostly learned," and "Don't measure intelligence." Although the relationship here (see Table 6.4 deposited with the NAPS) reaches the .001 level, the actual percentage distributions are not as striking as these significance levels would suggest. This level of statistical reliability is due to the extreme negative attitudes held by respondents in the "Don't measure intelligence" category. In general, then, we may conclude that whether or not a student believes intelligence is learned or inborn has little to do with the attitudes he has toward taking standardized tests of ability, except in the extreme negative case.

Beliefs About the Accuracy of Intelligence Tests

The present item (Item 61) was included here on the supposition that respondents who think tests are accurate should also hold favorable attitudes toward taking intelligence and college entrance tests. To simplify the analysis, we dichotomized the five response categories into "inaccurate" and "accurate," eliminating 850 respondents who said they had "No opinion." Table 6.5 deposited with the NAPS presents the relevant data for the intelligence tests index. As expected, the results show that more respondents who think the tests are accurate hold positive rather

than negative attitudes toward taking intelligence tests. This tendency is evident for both indices, and the overall significance of both relationships reaches the .001 level.

Accuracy of Respondents' Own Test Results

It seemed to us that students who believe their performance on intelligence tests accurately reflects their real intelligence should also be more favorable toward taking such tests. Response categories for this item (Item 155) were again collapsed—this time into "lower," "accurate," and "higher." As expected, Table 6.6 deposited with the NAPS shows that more students who believe their test scores are "accurate" hold positive rather than negative attitudes toward taking intelligence tests. This also holds in regard to college entrance tests. Conversely, more of the students who believe their test results are lower than their real intelligence hold negative rather than positive attitudes. It is interesting to note that a similar analysis involving the item, "Do you think that your school marks accurately reflect your real intelligence?" showed no relationship between the indices. Beliefs about the accuracy of intelligence test performance is specific to that belief and does not reflect some more general tendency to like or dislike various measures of academic ability or achievement.

Opinions About the Amount of Time Spent Taking Tests

One symptom of a negative attitude toward taking tests would be the complaint that too much time is spent with such matters. Accordingly, we examined the relationship between the attitude indices and the item, "How do you feel about the amount of time you spend taking standardized tests?" To simplify the analysis we collapsed the five response categories associated with the item (Item 238)[2] into "too little time spent," "too much," and "right amount." Examination of the percentage distributions reveals that the proportion of respondents that says "the right amount of time" increases from 50 per cent among those with negative attitudes to 77 per cent among those with positive attitudes. Correspondingly, more than three times as many of the negative than the positive attitude respondents (42 vs. 13 per cent) say that they spend too much time taking tests. Respondents who hold negative attitudes toward taking tests are, as one would expect, the ones who would like to be tested less frequently.

The preceding analyses enable us to draw the following conclusion. If a respondent believes that standardized tests of ability are accurate, or that his performance on such tests accurately reflects his real intelli-

[2] Along with the item in the questionnaire, respondents were given five response categories as follows: (1) "I spend far too little," (2) "I spend too little," (3) "I spend neither too much nor too little time," (4) "I spend too much," (5) "I spend far too much," and (6) "I have no opinion."

TABLE 6.7.1 Test-taking attitude index (intelligence tests) by social background variables*

	Public School Students			
	Test-taking attitude index:			
	Negative %	*Neutral* %	*Positive* %	*Total* % (f)
Father's Education: ($p < .02$)				
Less than High School	25	50	25	100 (1328)
High School Graduate	24	50	26	100 (884)
Some College	21	47	33	100 (370)
College or more	25	44	31	100 (333)
Sex: ($p < .001$)				
Male	22	48	31	101 (1331)
Female	26	50	24	100 (1606)
Grade: ($p < .001$)				
10th	20	51	29	100 (1600)
12th	29	47	24	100 (1337)
Race: (n.s.)				
White	25	49	27	101 (2728)
Negro	19	52	30	101 (157)
Religion: (n.s.)				
Protestant	24	49	27	100 (1621)
Catholic	27	45	28	100 (635)
Jewish	23	50	27	100 (137)

* Respondents for whom relevant information is lacking have been eliminated from this table.

gence, he will be more likely to hold positive rather than negative attitudes toward taking these tests.

SOCIAL BACKGROUND VARIABLES AND TEST-TAKING ATTITUDES

In this section we describe the relationship between the trichotomized attitude index and a number of social background variables, including sex, grade level, education of the respondent's father, and others. Table 6.7.1 and Tables 6.7.2–6.7.3 deposited with the NAPS summarize these data. It will be recalled that the negative category for the attitude index means that respondents disliked taking tests, were afraid, bored, nervous, and annoyed. The positive category means they enjoyed taking tests, were confident about their performance, and found the tests an interesting challenge. As we indicated above, the neutral category is somewhat ambiguous and includes a mixture of positive and negative attitudes.

Education of Respondent's Father

Examination of the public school data in Table 6.7.1 indicates that respondents whose fathers have higher levels of education show more positive attitudes toward test-taking than those whose fathers have less

education. The entire table approaches significance at the .02 level, but the predominant differences occur in the positive and intermediate categories of the index.[2]

The relationship of father's education to attitudes toward test-taking appears to be negligible in the case of the private school population (see Table 6.7.3 deposited with the NAPS). Data for the parochial schools (Table 6.7.2 deposited with the NAPS), however, seem to parallel the findings obtained with public school students, although the results do not approach statistical significance. In sum, we do not find strong support for the hypothesis that father's education has a significant relationship to affective reactivity to taking intelligence tests. Similarly, the data for college entrance test-taking attitude does not exhibit a consistent pattern of relationships with father's education.

Sex

Respondents in the public and parochial schools show some differences in their attitudes toward test-taking as a function of their sex. Table 6.7.1 and Table 6.7.2 deposited with the NAPS indicate that more males, in contrast to females, are positive in their attitudes toward taking intelligence tests. For the private school students, an opposite tendency is to be seen in Table 6.7.3 deposited with the NAPS, although this latter difference is not statistically significant.

The results for the public and parochial schools seem consistent with expectations for the male role in this society. It is generally assumed that males are more competitive, and look for opportunities to be tested in life, to try themselves against universal standards so as to prove where they stand, and overall to take a more positive approach to rivalry with other men and to being judged by the world. It is to be expected, therefore, that male students, in contrast to females, will show greater positive motivation and interest in standardized tests.

The results for attitudes toward taking college entrance examinations are similar to those described above. Males again show more favorable attitudes than females, whereas females show greater negativity than males. This relationship is significant ($p<.001$) in all three school types.

Grade Level

In all three schools (see Table 6.7.1; also Tables 6.7.2 and 6.7.3 deposited with the NAPS), the results indicate that tenth-grade students, as compared with twelfth-grade students, are more favorable toward taking intelligence tests. The finding that younger students are more favorable toward taking intelligence tests might be interpreted as simply reflecting

[2] An attitude study (Tesser and Leidy, 1968) of a national sample of high school students which involves some questions about intelligence testing showed that "as socioeconomic status goes up, attitudes about tests become more favorable."

the satiation of the older student who, by the time he has reached the twelfth grade, has taken many more standardized tests. This does not, however, seem to be the case. Amount of testing experience is not, as we shall see below, related to increasing negativity of attitude.

This finding of a greater frequency of negative affect among the twelfth-grade students is one that is of considerable importance and generality. We have reported earlier that the twelfth-grade student: (1) was somewhat more critical of the accuracy of intelligence tests; (2) attributed much less importance, for the achievement of success in life, to the abilities measured by these instruments; and (3) regarded his own test results as being more of an underestimate of his "true" intelligence. In regard to beliefs about the fairness of using test information to make a variety of personally and socially important decisions, a topic that we take up in Chapter 12, our finding is that the twelfth-grade respondents are generally more opposed to this practice than are the tenth-grade respondents. We may conclude, then, that negative attitudes toward tests and testing are most common among high school seniors.

Race and Religion

We report no findings for race and religion, since the percentages reveal negligible differences in attitudes related to these characteristics. A similar state of affairs exists for college entrance examinations. However, other analyses in this study have shown that race correlates negatively with reading test scores (Appendix B), and as we will see below, reading ability correlates positively with the test-taking attitude indices. In view of this, we decided to look at the effects of the race variable on the attitude indices controlling for level of reading ability. Table 6.8 deposited with the NAPS presents these data for the public school sample. Chi-square tests on each of the three rows are uniformly nonsignificant largely because of the small numbers involved. However, there are some trends worth noting, including the tendency for fewer Negro than white respondents to hold negative attitudes at the lower and average levels of reading ability. Conversely, more Negroes than whites hold positive attitudes at all three levels of reading test scores, with the differences being most striking in the high and average ability levels. These findings are generally parallel to our earlier observations (Chapter 5) that lower-class Negro respondents consider intelligence tests to be very accurate and Negro respondents at all social class levels consider tested intelligence more important for achieving success than do white respondents.

In general, we may conclude that, of the social background variables examined in this section, only grade and sex show any substantial relationship to students' attitudes toward test-taking.

TABLE 6.9.1 Test-taking attitude index (intelligence tests) by reading test score, educational aspiration, and experience with tests*

	Public School Students			
	Test-taking attitude index:			
	Negative %	*Neutral* %	*Positive* %	*Total* % (*f*)
Reading Test Score: ($p < .001$)				
Low	30	47	24	101 (721)
Medium	27	51	22	100 (1005)
High	18	48	34	100 (1091)
Educational Aspiration: ($p < .001$)				
High School or less	29	49	23	101 (542)
Some College	27	51	22	100 (994)
College	22	48	29	99 (895)
Advanced Degree	17	45	38	100 (477)
Intelligence Test-Taking Experience: (n.s.)				
Several	24	48	29	101 (2048)
Once	27	51	23	101 (726)
Not Sure	22	53	26	101 (163)

* Respondents for whom relevant information is lacking have been eliminated from this table.

READING TEST SCORES, EDUCATIONAL ASPIRATIONS, AND EXPERIENCE WITH TESTS

Reading Test Scores

An examination of Table 6.9.1 and Tables 6.9.2–6.9.3 deposited with the NAPS reveals that positive attitudes toward taking intelligence tests are related to the level of the respondent's reading test performance. Students who have been categorized in the upper three deciles of the distribution of reading test scores show more favorable attitudes than do respondents classified in the lower third of the distribution. Negative attitudes are associated with reading ability in a directly opposite fashion, with low ability respondents showing greater negativism than those with higher ability. These relationships are significant ($p<.001$) in all three types of school. The results are reasonable if we assume that respondents with superior ability have probably experienced success with intelligence tests, whereas low ability respondents have had less success on these tests. We also know from analyses reported in the preceding chapter that the high ability student feels that his test score is an accurate measure of his intelligence, while the low ability student feels that his test score underestimates his true intelligence. Given these factors, we would ex-

pect the high ability respondents to show favorable attitudes and the low ability respondents unfavorable attitudes. The data on attitudes toward taking college entrance examinations, among parochial and private school respondents, provide confirmation of this assumption. The public school results for this index were not, however, related to reading test score. This finding may be due to a more limited range of reading test scores among public school students taking college entrance examinations.

Educational Aspirations

Table 6.9.1 and Tables 6.9.2–6.9.3 deposited with the NAPS present data on the relationship between educational aspirations and attitudes toward taking intelligence tests. In all three schools, favorable attitudes are held by more of those with higher educational aspirations, whereas negative attitudes are characteristic of those with lower aspirations ($p<.001$). As with the results on reading ability, we would expect this result on the basis of the assumed greater success with tests characteristic of students with higher educational aspirations. However, since the aspiration variable is correlated with reading test scores, it is necessary to look at these variables in interaction. Since sex also correlates with aspiration, the analysis was done separately for males and females. Tables 6.10.1 and 6.11.1 present the relevant data for the public school students. For the males at average and high levels of reading ability, more respondents show positive test-taking attitudes and fewer show negative attitudes, as we move from low to high levels of aspiration. There is virtually no relation between positive attitudes and aspirations at the lowest level of reading ability. The results for females are generally in the same direction, although the direct relationship between positive attitudes and aspirations does not occur very clearly except at the highest level of reading ability.

Parallel analyses were carried out for the parochial school students. For male respondents (Table 6.10.2 deposited with the NAPS) the results are almost identical to those found with the public school males. (The small numbers involved in the comparison at the lowest level of reading ability prohibit drawing any conclusion for this category.) The results for parochial school females (Table 6.11.2 deposited with the NAPS) are also similar to those observed among the females in the public school sample. Positive attitudes become more frequent with increasing aspiration at the highest ability level, and there is essentially no relationship at the average and lowest ability levels. The results for the private school sample are difficult to interpret because of the small numbers involved, and because so few of these respondents were of low or even average reading ability. For these reasons, we do not present any data.

TABLE 6.10.1 Test-taking attitude index (intelligence tests) by educational aspiration and reading test score for male respondents

	Public School Students			
	Test-taking attitude index:			
Educational Aspiration	*Negative* %	*Neutral* %	*Positive* %	*Total* % (f)
Low Reading Test Score:				
High School or less	29	40	30	99 (99)
Some College	30	45	25	100 (136)
College Graduate	27	45	27	99 (77)
Advanced Degree	22	48	30	100 (27)
Medium Reading Test Score:				
High School or less	21	62	18	101 (73)
Some College	29	49	22	100 (144)
College Graduate	21	54	25	100 (169)
Advanced Degree	16	46	38	100 (56)
High Reading Test Score:				
High School or less	24	52	24	100 (29)
Some College	8	56	36	100 (73)
College Graduate	12	47	40	99 (205)
Advanced Degree	14	38	48	100 (160)

TABLE 6.11.1 Test-taking attitude index (intelligence tests) by educational aspiration and reading test score for female respondents

	Public School Students			
	Test-taking attitude index:			
Educational Aspiration	*Negative* %	*Neutral* %	*Positive* %	*Total* % (f)
Low Reading Test Score:				
High School or less	31	47	22	100 (136)
Some College	33	51	16	100 (160)
College Graduate	32	42	26	100 (50)
Advanced Degree	13	63	25	101 (24)
Medium Reading Test Score:				
High School or less	29	48	24	101 (105)
Some College	29	54	18	101 (256)
College Graduate	32	48	21	101 (146)
Advanced Degree	24	51	24	99 (49)
High Reading Test Score:				
High School or less	31	48	21	100 (48)
Some College	21	54	25	100 (187)
College Graduate	22	48	30	100 (233)
Advanced Degree	17	47	36	100 (155)

We have three conclusions from the analyses. First, we see that students with high aspirations but low reading test scores do not have as positive attitudes toward standardized intelligence tests as do other students. Second, we may conclude that male respondents are more favorable in their attitudes toward test-taking when they perceive tests as instrumental to attaining educational goals and when, of course, they tend to do well on tests, as might be expected with students who receive high and average reading test scores. This explanation receives support from the female data, where test-taking attitudes are related to educational aspirations only at the high ability level. A partial explanation for this sex difference may lie in lower aspirations of female students, which can be attributed, in part, to definitions of the female role in this society. It is only with brighter and intellectually exceptional females that one observes test-taking attitudes that are similar to those held by the male students.

Let us note, finally, that the relationship of aspirations to attitudes toward taking college entrance tests was not significant. The reason for this is due, in part, to the small numbers of cases involved, especially at the lower aspiration level. It will be recalled from our earlier discussion that a large number of respondents were eliminated from analyses of the college entrance tests index. Most of these cases were low aspiration respondents, those who do not typically take college admissions tests.

Experience with Intelligence or College Entrance Tests

The question naturally arises whether attitudes toward taking tests are related to amount of experience with tests. Recent efforts to provide information about ability tests through practice manuals and special training programs have assumed that providing experience with tests helps to reduce the anxiety inherent for many in testing. Any influence on performance resulting from negative attitudes due to unfamiliarity with tests should presumably be weakened by such training, thus also allowing for a more accurate assessment of students' abilities. Granting these considerations, we hypothesized that negative attitudes toward taking tests would become less frequent with increasing test-taking experience.

We also hypothesized that positive attitudes toward taking tests would become more frequent with increasing testing experience, because it is the respondents with high reading test scores and high educational aspirations who are most likely to report several testing experiences and, as we have just seen, it is these students who hold the most positive test-taking attitudes.

Our examination of the relationship between the amount of test experience and attitudes is considerably limited in regard to the distribution of the experience variable. The data presented in Table 6.9.1 and in

Tables 6.9.2–6.9.3 deposited with the NAPS contrast the attitudes of respondents reporting several experiences in taking intelligence tests with the attitude of those who report just one such experience and with a small group of respondents who think that they have taken an intelligence test but were not sure of this. Within these limits, we see that experience is not significantly related to test-taking attitudes. There is a similar absence of relationship between amount of experience with college entrance tests and the distribution of attitudes toward these tests. This is surprising for the reasons stated above. One must keep in mind, however, that the foregoing analysis dealt with only a small group of respondents. Another possible explanation for the results is that negative attitudes are correlated with the attitude that tests are not accurate and not necessarily important for success in life, and that the high reading test score–high aspiration respondents also hold this attitude, as well as reporting more test experience. Thus, the various immediate and more distant correlates of test experience may cancel each other.

To summarize the results reported in the two preceding sections, it would seem that it is not the extent of one's experience with testing but the quality of this experience that is related to test-taking attitudes. This would explain the strong association between high reading ability or high educational aspirations and positive attitudes.

PERSONALITY CHARACTERISTICS

Dissatisfaction with self, personal alienation, and inner conflict may well be related to the way a person perceives tests of ability. It is not unreasonable to assume that a dissatisfied person might perceive standardized tests as a threat to his already vulnerable self-esteem and develop negative attitudes about taking them. Our data do, in fact, show certain systematic relationships between test-taking attitudes and personality variables like self-esteem.

Two of the personality factors, identity confusion and self-confidence, are related to the attitude indices. Identity confusion refers to the individual's lack of clarity about his identity in society. The items loading this factor suggest dissatisfaction with self, a continually changing personality from one situation or role to another and general confusion regarding who one is or is supposed to be. In all three schools, this factor is inversely related to positive attitudes and directly related to negative attitudes toward taking intelligence tests. These data are reported in Tables 6.12.1–6.12.3 deposited with the NAPS.

The other factor, defensive self-confidence, appears to be directly related to test-taking attitudes. Respondents who are confident show more favorable attitudes than those who have little confidence in themselves. This relationship holds for the public and parochial schools and is generally in the same direction but not significant in the private schools.

That defensive self-confidence should bear a direct relationship to favorable test-taking attitudes needs little comment, because some of the individual items of the test-taking attitude index are really just other ways of expressing the kind of self-confidence being measured by this factor; for example, "I found the test an interesting challenge," or even more to the point, "I felt confident."

The data on attitudes toward taking college entrance tests reveal a pattern that is almost identical to that reported for intelligence tests. Again, it is identity confusion and defensive self-confidence that are related to the attitude index. In the case of identity confusion, the relationship is inverse, while for defensive self-confidence the relationship is direct.

One other personality index also shows a relationship with attitudes toward test-taking; the self-esteem index. The data on self-esteem and test-taking are consistent with those found for defensive self-confidence. The results show more favorable attitudes on the part of respondents with higher self-esteem and more unfavorable attitudes on the part of those with lower self-esteem. This trend is evident in all three schools and for both of the attitude indices, although it does not reach statistical significance in the private school. The index for college entrance tests is unrelated to self-esteem in the public school, but strongly related in the parochial school, and somewhat related in the private school ($p<.02$).

7

High and Low Self-Estimates of Intelligence

WHETHER A person feels he is high or average or low in intelligence compared to others is the result of many varied experiences of his lifetime, which provide information he views as relevant to judging his own abilities. His self-estimate of intelligence will be derived from information he has received in the form of school grades, or his success on a job, or what people tell him, or his observation of others, or as we have seen, in an increasing number of instances, standardized intelligence test scores. Beliefs and attitudes about one's own intelligence are important elements in the more general set of attitudes and beliefs a person has concerning intellectual differences and intelligence tests. These self-estimates of intelligence may underlie, and in any event certainly are correlated with, aspirations for college, attitudes toward ability grouping, and others of the numerous variables considered in this study.

It appears that most people, or certainly most students, think about how they compare with others in intelligence, and are able to rank themselves in these comparisons. Only 5 per cent of our group of student respondents said they had never thought about how they compared in intelligence with other students. Of the 95 per cent who had considered this, some 8 per cent were still unable to rank themselves, but all of the other respondents provided these rankings. Since these self-ratings, as we see shortly, are related to their reading test scores, we would expect that rating one's self high or low is not an especially productive bit of information to have about the person and that pursuing its relationships with other attitudes and beliefs will not yield much more than we already

have learned about the relationship of high and low reading test scores with these other variables.

But this suggests almost at once that there is an opportunity to deal with self-estimates of intelligence in a way that may lead us into new areas of analysis, with a substantial yield of new information and insight. What emerges as of high significance is to investigate one's beliefs about his intelligence in relationship to his scores on a standardized measure of intelligence. Some students may have self-estimates of intelligence higher than one would expect on the basis of reading test scores, while other students may underestimate their rank compared to other students. Low self-estimates of intelligence, that is, beliefs about one's abilities that rate them lower than is reasonable, may represent potential loss of talent and low utilization of intellectual resources on the part of a significant number of American secondary school students. On the other hand, high self-estimation where one's intelligence is, in fact, low is an unrealistic self-appraisal that may lead to a life of continued inability to fulfill one's aspirations. Our main interest in this chapter, then, is in the systematic sources of high and low self-estimation of intelligence, in reference to measured intelligence. Our first tasks are to describe the distribution of self-ratings of intelligence, to show how these relate to measured intelligence, and to identify the groups of students with higher and lower self-estimations of their abilities, relative to measured intelligence.

THE RELATIONSHIP OF SELF-ESTIMATES OF INTELLIGENCE TO READING TEST SCORES

The basic distribution of beliefs about one's own intelligence in comparison with others is given in Table 7.1, and in Table 7.2 deposited with the NAPS.[1] It is interesting to note that the American secondary school student, on the average, estimates his intelligence to be slightly higher than that of other students in his school; on the average also, he believes he is brighter than the general population of students. The percentage of high-estimates among the private school respondents is understandably greater where the standard of comparison is students in the United States as contrasted with those in their own schools. For the other two types of schools, though, the percentages in the two comparisons are remarkably similar.

There is, as we anticipated, a very strong relationship between reading test scores and these self-estimates of intelligence. Table 7.3.1 and Tables 7.3.2–7.3.3 deposited with the NAPS present the relationships between the two variables for the three types of schools separately. (The

[1] Table 7.2 gives data on comparisons with others in the respondent's own school.

TABLE 7.1 Responses to Item 126: *"How would you say you compare in intelligence with other high school students in the United States?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
I am definitely below average in intelligence	2	1	0
I am slightly below average in intelligence	6	5	2
I am just about average in intelligence	33	31	8
I am slightly above average in intelligence	20	23	22
I am definitely above average, but not among the highest in intelligence	21	25	49
I am among the highest in intelligence	3	4	14
I have never thought about how I compare with other high school students in intelligence	6	4	2
I have thought about it, but I really don't know how I compare with others	10	7	3
TOTAL	101	100	100
Number	(5300)	(2623)	(1194)
No Response	(21)	(13)	(4)

reading test scores are grouped by deciles rather than thirds in this study of self-estimates, to permit a more detailed analysis.) To simplify the presentation we have used only the students' comparisons of themselves to the United States population of high school students. This is used because it is most comparable to the reading test scores, as the percentile scores of the latter are based on a national population.

Although the relationship between self-estimates and reading test scores is strong, nevertheless we find substantial deviations from the main diagonal. In the public schools, of the 1500 boys and girls in the top three deciles, 300 (or 20 per cent) view themselves as being only average or below average. Of the almost 1500 public secondary school students scoring in the four lowest deciles, 175 (or more than 10 per cent) say they are among the highest in intelligence, and another 250 say they are above average. Thus, we find the two corners off the main diagonal, representing, respectively, those who are high in measured intelligence and have low self-estimates, and those who are low in measured intelli-

TABLE 7.3.1 Self-estimates of intelligence (Item 126) by reading test scores*

	Public School Students									
	Reading Test Scores: Deciles									
	1 %	*2* %	*3* %	*4* %	*5* %	*6* %	*7* %	*8* %	*9* %	*10* %
I am definitely below average in intelligence	6	6	3	4	3	2	0	0	0	0
I am slightly below average in intelligence	17	19	13	12	9	8	5	3	1	1
I am just about average in intelligence	37	52	57	55	52	49	41	31	21	9
I am slightly above average in intelligence	21	15	16	19	21	23	29	31	30	28
I am definitely above average, but not among the highest in intelligence	13	8	10	10	15	18	24	33	44	51
I am among the highest in intelligence	6	1	1	0	0	1	1	1	4	12
TOTAL	100	101	100	100	100	101	100	99	100	101
Number	(275)	(357)	(393)	(450)	(511)	(389)	(584)	(418)	(419)	(644)
Don't Know	30	24	25	18	12	15	13	10	10	8
Number	(117)	(114)	(129)	(100)	(70)	(69)	(85)	(47)	(44)	(54)

*** This and subsequent tables in this chapter giving reading test score deciles omit cases with no reading test scores.**

gence and have high self-estimates, to be populated by a substantial number of American secondary school students.[2]

These cases are more than just sampling or measurement errors. At first glance, of course, one might think these were errors attributable to the unreliability of the responses, and this might seem especially the case here because we are dealing with estimates, and one might conclude that there are many random errors of estimation that constitute normal variation around some standard. This is not the case, however, because we show that there are systematic relationships of a powerful nature between high and low self-estimates of intelligence and membership in certain groups in our society. Since errors of a random kind are not associated predominantly with one or another social group, these clearly are not an explanation of the differences in student estimation reported here.

SOCIAL BACKGROUND CHARACTERISTICS AND HIGH AND LOW SELF-ESTIMATES OF INTELLIGENCE

The social background characteristics used in the analysis are education of the respondent's father, and the respondent's sex and age, race and religion.

Father's Education

Our first exploration into the possible systematic sources of high and low estimation of intelligence leads us to consider the differences between students whose fathers have had differing amounts of education. Table 7.4.1 and Tables 7.4.2–7.4.3 deposited with the NAPS present self-estimates of intelligence in relation to the respondent's father's education. Father's education has been grouped into four categories: non-high school graduates, graduated from high school, attended college, and college graduate and graduate school. In these tables, self-estimates have been grouped into three categories or levels so as to best equalize the distribution and to simplify the data for presentation. In the first category are those who estimate their intelligence to be average or below; in the second category are those who estimate themselves to be slightly above average, and in the third category are those who estimate their intelligence to be definitely above the average, or among the highest. Reference to Table 7.3.1 will show that the first three rows of responses there have been collapsed into one new category in Table 7.4.1, that the fourth row response in Table 7.3.1 stands as it was, and that the fifth and sixth

[2] The self-estimates of the students in the lowest decile suggest that where reading ability is extremely low, responses to the questionnaire may be unreliable. This is true in other parts of the data and so we have chosen usually to disregard the responses of this lowest decile group.

TABLE 7.4.1 Self-estimates of intelligence (Item 126) by reading test score, by father's education

Father's Education:	*Public School Students* — *Reading Test Scores: Deciles* 1 %	2 %	3 %	4 %	5 %	6 %	7 %	8 %	9 %	10 %	*Total** %	(*f*)
Less than 12th Grade												
Estimates:												
Average or below	56	78	76	70	66	66	54	44	20	11	56	(1187)
Slightly above average	24	13	15	20	19	17	25	29	31	33	22	(458)
Definitely or highly above average	21	10	9	11	15	17	21	27	49	56	22	(457)
Number	(200)	(221)	(227)	(244)	(274)	(189)	(261)	(153)	(134)	(199)		(2102)
High School Graduate												
Estimates:												
Average or below	73	74	74	71	64	54	46	32	30	10	48	(625)
Slightly above average	14	19	15	18	23	31	29	33	30	28	25	(329)
Definitely or highly above average	14	7	10	11	13	15	25	35	40	62	26	(340)
Number	(51)	(85)	(105)	(137)	(143)	(133)	(183)	(138)	(135)	(184)		(1294)

TABLE 7.4.1 (*Continued*)

	Public School Students											
	Reading Test Scores: Deciles											
Father's Education:	*1* %	*2* %	*3* %	*4* %	*5* %	*6* %	*7* %	*8* %	*9* %	*10* %	*Total** %	(*f*)
Some College												
Estimates:												
Average or below	62	72	55	68	66	46	35	38	20	6	37	(188)
Slightly above average	25	22	29	20	22	24	32	32	27	29	27	(137)
Definitely or highly above average	12	6	16	12	12	30	33	30	53	65	36	(180)
Number	(8)	(32)	(31)	(40)	(50)	(37)	(69)	(53)	(75)	(110)		(505)
College or more												
Estimates:												
Average or below	89	82	72	70	50	41	30	16	14	7	27	(133)
Slightly above average	11	18	12	20	26	21	38	30	28	21	25	(125)
Definitely or highly above average	0	0	16	10	24	38	32	54	58	72	48	(234)
Number	(9)	(11)	(25)	(20)	(42)	(29)	(66)	(70)	(71)	(149)		(492)
												(4393)

* Total percentages are row percentages; all other percentages are column percentages.

rows of responses in Table 7.3.1 have been collapsed to form the third or "highest" category.

Two general points should be noted at the outset: First, the well-known positive correlation between father's education and measured intelligence of offspring is readily seen in the increase in the percentage of respondents in, for example, the ninth and tenth deciles, as father's education increases from the lowest to the highest of the four groupings. For the respondents who have fathers with less than a high school education, a simple computation shows that 9 per cent fall into the tenth decile; and of those who have fathers who are college graduates, 30 per cent do. At the other end of the ability range, the percentage in the first and second deciles is correspondingly less for respondents from better-educated families.

The other general point to note is the difference in the percentages of students from different social backgrounds in the top deciles in the three different types of schools. We find, for example, that among those children whose fathers have graduated from college, the percentage in the top decile rises from 30 per cent for the public school students, to 34 per cent for the parochial school students, and to 54 per cent for the private school students. This same pattern is borne out very clearly in the comparisons in other deciles.

This suggests some speculation about the interaction effect of intelligence and social class on the type of school attended. While intelligence is important for the upper-class children in determining their type of school, it is much more so for those coming from the less well-educated groups. Of those children coming from a college graduate background, only 54 per cent are in the top decile in the private school population, suggesting that the social class background of the parent enables children with lesser ability to enter private school. In contrast, 74 per cent of the children coming from nonhigh school graduate backgrounds are in the top decile of ability among the private school population, indicating clearly that if one is to enter private school from this background he must overcome the social class deficit by being more intelligent. The numbers are small, it is true, but the idea is strengthened by noting that the reverse is true in the other two school types.

As for the main question of this section, namely, the tie between father's education and self-estimates of intelligence: Table 7.4.1 makes it evident beyond any doubt that, within each decile grouping of respondents, those from families where the father has been well educated are more likely to have high estimates of their intelligence. In the public schools, in the tenth decile grouping, for example, 56 per cent of those from family backgrounds where the father is not a high school graduate rate themselves high, while 72 per cent rate themselves this way if their fathers are college graduates. This same powerful influence is evident

among the adolescents of lesser ability; for example, for those in the fifth decile, fewer children of nonhigh school graduates rate themselves high in intelligence (15 per cent) compared with children of college graduates (24 per cent).

This pattern also is shown by the parochial school and private school students. In the latter there is a big restriction of range of ability, but even so there is a steady increase in the percentage of students in the top decile who estimate themselves as among the brightest, ranging from 65 per cent for those whose fathers are nonhigh school graduates to 78 per cent for those whose fathers are college graduates.

In testing the significance of the relationship of education of father to self-estimates of intelligence, we must take into account the fact that there are relationships between social background characteristics such as father's education, and general personality characteristics such as fatalism and self-confidence. Thus, in testing for the significance of the relationship between various characteristics and self-estimates of intelligence it is desirable that we equate respondents on whether they are high or low on these personality characteristics.

To accomplish this we used an analysis that makes use of the "sign test" (Mosteller and Bush, 1954). First, the necessary data were tabulated in a manner illustrated by the following section from the tabulation for the personality characteristic of introspective self-concern.

Father's Education	*Introspective Self-Concern*	*Reading Test Score: Deciles*										
		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*Total*
12 Years or less	High	18	9	13	15	15	20	25	38	45	63	26
	Low	21	8	6	7	14	13	20	25	44	54	21
13 Years or more	High	13	10	21	14	17	33	40	48	58	72	45
	Low	0	0	11	10	18	33	25	40	53	65	37

In this illustration, the figures entered in the cells of the table are the percentage of respondents within that cell who have high estimates of their intelligence, that is, who rate themselves as "definitely or highly above average." We are able to compare persons in the tenth decile who are high on introspective self-concern, but who differ in education of father. (Note that for this purpose father's education has been grouped into categories of "high school graduate or less," and "attended college or more.") We are also able to make this comparison for the ninth, eighth, and seventh deciles, and so on, and then to repeat this comparison for each decile for those students who are low in introspective self-concern. This yields 20 comparisons, but since we believe responses in the lowest decile may have low reliability, we actually use only 18 comparisons.

The question we then ask is: In how many of these 18 instances do

the students who have better-educated fathers have a higher percentage of high self-estimators of intelligence? We see, for example, that in the tenth decile in both comparisons the students from better-educated backgrounds are higher than their comparable group from only a high school education background, the comparisons being 72 versus 63 per cent and 65 versus 54 per cent. In the ninth decile the comparisons show 58 versus 45 per cent and 53 versus 44 per cent.

Of the 18 comparisons, 15 need to be in a given direction in order to reach significance at the .01 level, and 14 should be in the same direction to be significant at the .05 level. (For the private schools, because of the smaller numbers in the lower deciles, comparisons were made only for the top four deciles, that is, the seventh through the tenth, yielding 8 comparisons. In this instance, all of the 8 need to be in a given direction to reach significance at the .05 level.)

We made the analysis of the relationship of father's education to self-estimates of intelligence while controlling on each of five personality variables, to see if the relationship still was maintained, that is, was independent of this personality characteristic. The characteristics are those of identity confusion, fatalism, introspective self-concern, defensive self-confidence, and the elitism-equalitarianism dimension.[1]

The results of the five analyses show that in each case father's education is significantly related at the .01 level to high self-estimates of intelligence in the public schools, but that in the parochial and private schools, although the trend is clearly in this same direction, the relationship does not reach significance. We can conclude from this section that for public secondary school students, those coming from a better-educated background more often will have significantly higher self-estimates of their intelligence relative to their actual measured abilities.

Sex

Now we turn to differences between the males and females in these tenth and twelfth-grade classes. Many studies have documented the higher level of academic performance of young women during this particular stage of their schooling, and on the assumption that the genetic endowment is approximately equal, it implies that girls work harder and make better utilization of their talents. On the other hand, it has frequently been noted that girls tend to avoid credit for outstanding intellect and in their interactions with the opposite sex are careful to play down any direct intellectual challenge, and one might expect that this major

[1] At the time these analyses were made, we omitted the characteristic of "self-esteem" because our preliminary review of the findings suggested it was closely related to self-confidence. Later analysis in the study has shown this is not the case, but we were not able to go back and add the additional analysis here for self-esteem.

value difference between the sexes in American culture would affect their stated estimates of intelligence.

The sexes seem to be equivalent in reading test scores; if anything, the girls tend to be higher (see Tables 7.5.1–7.5.3 deposited with the NAPS). But the table for the public school population shows that the percentage of males in the tenth decile of the reading test scores who estimate themselves as being high in intelligence is 66 per cent, and that the equivalent figure for females is 61 per cent. The higher self-estimation of intelligence of males is consistent throughout the comparisons of the ninth, eighth, seventh, and succeeding deciles. Moreover, this relationship of sex to intelligence estimates is more evident in the data for the parochial school students, and even more strikingly so for the private school comparisons. There seems no room for doubt that these self-estimates of intelligence are significantly related to being male or female.

Tests of this relationship, after equating the students on the same five personality characteristics used in the preceding analysis, show that in each instance of comparison in the public and parochial schools the higher frequency of high self-estimates by males remains statistically significant. The relationship shows up as especially pronounced in the parochial schools. In the private schools, the trend is quite strong in the same direction, with the relationship being significant in two instances, (where the students are equated on fatalism, and on defensive self-confidence).

This highly important finding can be challenged because a loose definition of intelligence is being used. These sex differences might be explained if one assumes that boys do, and girls do not, rely on their mathematical aptitude as an important component of their intelligence. Research (Fishman, 1957; Bieri *et al.*, 1958; Kagan, 1964; Altus, 1965) shows that males score higher than females in mathematical aptitude. If this aptitude is taken into account in self-estimates, then we would expect boys' estimates to be higher, relative to reading test scores alone than would be true for the girls, since the reading test is a measure of verbal aptitude.

Differences in mathematical aptitude probably are one source of sex differences in self-estimates of intelligence. It is likely that there are other sources also. The facts presented here direct one to the task of investigating how these young men and women do, in fact, develop such differing conceptions of their intelligence.

Age

A third characteristic of the respondents that may be related to their self-estimates of intelligence is their age, or more precisely whether they are in the tenth or twelfth grade in their schools. The data relating grade

status to self-estimates of intelligence are presented in Tables 7.6.1–7.6.3 deposited with the NAPS. Inspection of the public and private school data (the two groups of schools with which we will be concerned first) finds an increase in percentages of those saying they are higher than average in intelligence and a decrease in those rating themselves average or below, as students progress from tenth to twelfth grade.

Tests of the significance of these differences, following the same mode of analysis used for education and for sex in the preceding sections, reveal that the age difference in the public schools still is statistically significant, and that the trend in the private schools is very strong in the same direction.

Why should this increase in high self-estimation occur? One reasonable hypothesis is that as students get older they believe themselves to be more able relative to their reference groups. Note that the reference group on which ability estimates are based is high school students in the United States, not just those of the respondents' grade in their schools. The seniors, taking into account the range of talent and knowledge from the ninth to twelfth grades, understandably may rate themselves as higher, while the sophomores, given the same frame of reference, have lower estimates. In addition, we know from the data in Chapter 2 that students believe that as they get older they acquire more intelligence; that intelligence, so to speak, increases throughout the life span. Where the concept of intelligence is partly made up of increases in knowledge, it is reasonable that we should find this age difference in estimates of one's intelligence.

Now let us turn to the puzzling characteristics of the parochial school population. We observe that for the middle decile groups there is an unexpected decrement from the tenth to the twelfth grades in level of estimation, and even though there is an increase in the two top deciles, the increase is not nearly as substantial as that which occured for the public and private school populations.

At the tenth-grade level, looking at the data for the totals in the right-hand column for Tables 7.6.1 and 7.6.2 deposited with the NAPS, one sees that the parochial schools at the tenth-grade level show a significantly higher estimation of abilities than do public school students (attributed to their higher social class level). Thus, 34 per cent of the tenth-graders in the parochial schools estimate themselves in the definitely above average or highest group, and only 25 per cent of the public school groups do so. Forty per cent of the parochial school students view themselves as average or below, and 50 per cent of those in public schools fall into this category. But, looking at the same data at the twelfth-grade level these differences actually have disappeared. While the parochial school groups have decreased their estimates of their intelligence, the members of the public schools have increased theirs, resulting in their being no

difference between these two types of schools by the time senior year has occurred.

Although this reversal of the effect for the public and private schools does not reach statistical significance in the parochial schools, it is substantial and deserves speculation. Thus, in the analyses two-thirds of the comparisons show the older group of respondents to have the lower percentage of high self-estimators of intelligence, in sharp contrast to the significant trend for the public school where the comparisons show the older group to have the higher percentage of high self-estimators.

How might we explain this change among parochial school students which is in a direction contrary to that for the public and private schools? First, it may be that there was a differential retention of students by the three types of schools. For example, the parochial schools may retain more girls or more boys than do the other school systems. This point was checked, and there was no relationship between tenth and twelfth-grade status and being male or female, and no differential retention of males or females by the school systems. It might be that in the parochial school system there is greater loss of the high self-estimating group, but this is contrary to experience and highly unlikely. Conversely, greater retention of the low self-estimating group would simply maintain the tenth-grade level; it would hardly account for the unexpected decline in intelligence estimates of the parochial school population over the two-year period.

A second explanation might seem to be the greater exposure to information about one's abilities that characterizes the parochial school students. We know from the data in Chapter 9 that these students report more often receiving specific information about test results. However, an examination of the public school data shows that this cannot be, because twelfth-graders report more specific feedback than do tenth-graders, and yet the percentage of high self-estimators among them increases.

There is one more thing: we know from the survey of teachers in these schools, the results of which are published in a companion volume *Teachers and Testing* (Goslin, 1967), that parochial school teachers report more interest in standardized testing, greater use of tests, more reliance on test information, and greater readiness to give such information to students and parents, and that they actually distribute such information to a greater degree. How this might operate to hold down increased high estimation is not clear, but should be kept in mind in speculation about the possible reasons for these interschool differences.

Race and Religion

The analyses of the relationship of race and religion to self-estimates of intelligence were carried out at a different, earlier time and with a somewhat different plan than the preceding analyses, and consequently

they are not identical. Instead of three categories of self-estimates, four were used; the analyses were made only for the public school populations because of the low number of Negroes and Jews in the other schools; and, we did not do the analyses while controlling for personality variables. Nevertheless, Table 7.7, giving the data on Negro/white differences, and Table 7.8, presenting the religious comparisons, have some very clear and interesting results.

Examination of Table 7.7 shows Negro students at the lower five deciles, substantially more often than white, rate themselves as above average or even higher. The white students show a more realistic appraisal of their abilities, relative to test scores, while the Negro students show an unrealistic and substantial over-estimation of their actual abilities.

A review of Table 7.8 shows that the Catholic students in the public schools in the higher reading test score deciles less frequently rate themselves above average or higher than do the Protestant students, and both show lower self-estimates of intelligence than do the Jewish students. We have a partial confounding of the results here by the correlation of religion with father's education, so that part of the difference represented here may be a consequence not of religious background but of educational background.

THE INFLUENCE OF PERSONALITY CHARACTERISTICS ON SELF-ESTIMATES OF INTELLIGENCE

Personality may influence self-estimates of intelligence in various ways and in its own right, of course, and an analysis necessarily would be made of this possible influence. The fact is that the cross-tabulations described above between personality characteristics, social background characteristics, and intelligence estimates permit us to move directly to the investigation of personality characteristics, meanwhile controlling for the three of the social background characteristics: father's education, sex, and age of the students.

The mode of analysis is the same as that used in the preceding section, but in this instance we ask, for example, whether those students low in introspective self-concern have a higher percentage of high estimators of intelligence than do students high in this characteristic, when the students are equated on father's education, sex, and grade in school. Let us look again at the illustration we presented earlier. We can compare, within the group of students whose fathers have twelve years or less of education, those percentages in the second through tenth deciles for the high and low scorers on introspective self-concern. Thus, we see that in the tenth decile the high scorers on this personality characteristic have 63 per cent high estimators as contrasted with 54 per cent for the low

scorers. Similarly, the ninth decile gives a 45 versus 44 per cent comparison, the eighth decile, 38 to 25 per cent, and so on. This same mode of analysis can be made for the students from educational backgrounds where the father has had thirteen years or more, yielding an additional 9 comparisons, or 18 comparisons in all.

The significant results of the analyses for four personality characteristics are presented in Tables 7.9–7.12 deposited with the NAPS. There were no significant relationships between estimation of intelligence, controlled by decile and social background, and scores on the dimensions of intellectual elitism-equalitarianism.

We begin our analysis with the personality characteristic of identity confusion. (Note that this is not the same factor used in the illustration in the preceding paragraph.) Table 7.9 shows that in the public schools those students who are high on identity confusion significantly more often have a lower percentage of high estimators of intelligence. There is a tendency toward this effect in the private school but it does not approach significance. In the parochial school, we do not see a tendency toward this effect, the students being essentially divided equally as to high and low estimates of intelligence. In general, as we shall see, the relationship between personality variables and self-estimates of intelligence seems to be stronger in the student population of the public schools than for students in the other two types of schools.

Table 7.10 shows that those students who are low on fatalism significantly more often have a high percentage of students giving high self-estimates of intelligence. This relationship between fatalism and estimation is what one might expect, for the items making up the fatalism factor are not likely, on the face of it, to be related to a feeling that one is among the ablest in intelligence. We have already seen that low or moderate reading test scores are correlated to a substantial degree with fatalistic attitudes. We now see that in addition, at whatever level of ability one actually has, fatalism is related also to low self-estimates of intelligence. And we have already seen that education of father is correlated with fatalism, but still we see that at whatever level of educational background, fatalism and low estimates are related. We see the same pattern as we did for the variable of identity confusion. The effect is significant in the public schools; there is a strong trend in the private schools, reaching significance in the case where sex is controlled, but again the parochial school students do not show this relationship.

Table 7.11 presents the results of the analysis for the variable of introspective self-concern. Those respondents who are high on this characteristic significantly more often have a high percentage of high self-estimators of intelligence. The effect is mainly in the public schools. In this instance, the parochial school students also manifest the relationship described, and it reaches significance in the instances where sex and

TABLE 7.7 Self-estimates of intelligence (Item 126) by reading test score, by race

	Public School Students											
	Reading Test Scores: Deciles											
	1 %	*2* %	*3* %	*4* %	*5* %	*6* %	*7* %	*8* %	*9* %	*10* %	*Total* %	(*f*)
White												
Intelligence Estimates:												
Slightly or definitely below average	28	26	17	16	11	10	5	3	1	1	10	(391)
About average	44	53	59	55	53	48	42	31	22	8	39	(1606)
Slightly above average	17	14	15	19	21	23	29	31	30	28	24	(969)
Definitely above average or among the highest	11	7	9	10	15	19	25	35	48	63	27	(1111)
Number	176	307	353	420	481	366	558	397	398	621		(4077)
Negro												
Intelligence Estimates:												
Slightly or definitely below average	9	8	10	8	11	17	7	9	—	—	9	(23)
About average	22	46	33	50	44	61	20	18	29	17	33	(89)
Slightly above average	32	23	27	21	22	11	40	54	21	17	27	(72)
Definitely above average or among the highest	37	23	30	21	22	11	33	18	50	67	31	(82)
Number	85	39	30	24	18	18	15	11	14	12		(266)

TABLE 7.8 Self-estimates of intelligence (Item 126) by reading test score, by religion

	Public School Students											
	Reading Test Scores: Deciles											
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*Total*	
	%	%	%	%	%	%	%	%	%	%	%	(*f*)
Protestant												
Intelligence Estimates:												
Slightly or definitely below average	31	30	15	12	10	8	3	4	1	1	8	(184)
About average	43	51	58	58	53	44	42	30	21	8	37	(872)
Slightly above average	16	12	17	19	24	24	31	31	30	28	25	(600)
Definitely above average or among the highest	10	7	10	11	13	24	24	35	48	63	30	(720)
Number	70	131	162	226	282	219	329	267	251	439		(2376)
Catholic												
Intelligence Estimates:												
Slightly or definitely below average	24	24	14	20	13	13	8	1	1	—	11	(103)
About average	43	49	65	53	56	51	42	40	28	12	44	(406)
Slightly above average	24	19	13	18	13	26	24	34	32	39	24	(220)
Definitely above average or among the highest	8	7	7	9	19	10	26	25	39	49	21	(194)
Number	37	94	92	108	111	78	132	85	83	103		(923)
Jewish												
Intelligence Estimates:												
Slightly or definitely below average	33	14	—	10	13	—	9	—	—	—	4	(7)
About average	66	86	67	40	20	44	22	—	11	4	21	(38)
Slightly above average	—	—	33	40	33	25	30	38	19	22	26	(47)
Definitely above average or among the highest	—	—	—	10	33	31	39	62	70	74	49	(89)
Number	3	7	9	10	15	16	23	21	27	50		(181)

age are controlled. There is a strong trend in the same direction for the private schools.

Finally, the effects of defensive self-confidence in relation to self-estimates of intelligence are given in Table 7.12 and show a very powerful correlation. All three types of schools show what one would expect, that a belief in one's own high intelligence is part of a broader complex of favorable self-attitudes. Once again, the effect is strongest in the public schools, but significance is reached in some of the analyses for the parochial and private schools also.

We have seen in this section and the preceding one that social background characteristics and more general personality characteristics make independent contributions to determining whether a respondent's self-estimates of intelligence will be high or low. We had expected when we undertook the analysis that we might find, for example, that fatalism and father's education were related in such a way that if one equated students on father's education, the effects of fatalism would be moderated or eliminated. The fact is that these two classes of characteristics, one referring to group membership with some kinds of common experiences which influence attitudes, and the other to general personality characteristics which may or may not be related to membership in these social groups, are both independently related to intelligence estimation.

We conclude, then, that the students who are male, of high educational background, in the twelfth grade, Jewish rather than Catholic or Protestant, Negro rather than white, who score high on self-confidence and introspective self-concern, and low in fatalism and identity confusion, will have high self-estimates of intelligence relative to their measured ability.

8

Educational Aspirations and Self-Estimates of Intelligence

FOR APPROXIMATELY three decades the aspirations of American secondary school students for higher education have been the focus of many studies, and such aspirations continue to be an important subject of social science research. The data from our national survey of students permit us to make an important and original contribution to understanding educational aspirations; namely, we demonstrate for our national sample of secondary school students that the higher their self-estimates of intelligence, the more frequently they aspire to complete college, and that this relationship still remains even when students are matched on characteristics of religion, sex, father's educational background, grade in school, and measured intelligence.[1]

THE MUTUAL INFLUENCE OF ASPIRATIONS AND SELF-ESTIMATES

Both theory and research evidence direct us to the conclusion that educational aspirations and self-estimates of intelligence influence one another; that as one increases, the other is likely to increase as a consequence. In our analysis in this chapter we are deliberately selecting

[1] Educational aspirations are positively related to actual educational attainment. For instance, in the major longitudinal study by Sewell and Shah (1968) of the complete 1957 population of Wisconsin school seniors, about 80 per cent of those who said they planned to go to college actually attended college. The correlation was .78 for females and .67 for males. One can assume that studies of the correlates of educational aspirations will provide some insight, therefore, into the influences upon actual educational attainment by American youth.

as the major line of inquiry, the major focus of the chapter, the study of educational aspirations as the "dependent variable."

To review briefly the material relevant to the mutual effects of these two characteristics, we start with the influence of self-image on aspirations. Only a few studies seem to have dealt with the problem in the field of education. The most directly relevant is Brookover *et al.* (1965), indicating that experimental attempts to change self-estimates of mathematical ability lead to improvement in subsequent marks. More recently Rosenthal and Jacobson (1968) show that if teachers behave toward children as if they were bright, the children's educational performances improve. An earlier study by Brim (1954) shows that college grades and self-estimates of intelligence (with actual intelligence controlled) are positively related.

But it is not on these few studies that one needs to rest the case for the influence of the self-image on behavior. One should draw on the long line of studies of the self-image (see reviews in Brim and Wheeler, 1967; Gordon and Gergen, 1968) affirming the development of the self-image from experience and the influence of the self-image on motives, beliefs, and behavior. Moreover, we know specifically from research on level of aspiration (Crandall, 1963; Atkinson, 1964; Taylor, 1964; Atkinson and Feather, 1966) that the goals set by persons under experimental conditions rise to higher levels in accord with rising beliefs about their abilities to achieve the goals.

Conversely, there is substantial evidence that aspirations influence self-estimates of one's abilities. First, the research on level of aspiration just referred to shows, in addition to the foregoing, that the level of aspiration one sets for himself influences his judgments about his abilities to reach his goal. Moreover, other experiments (for example, Cronbach and Davis, 1944) demonstrate that what one wants to achieve will affect what he believes to be true. There is, in addition, much clinical evidence affirming this basic personality process. In many cases in clinical study it is evident that one's desires have so distorted his estimates of his abilities and resources as to make the person unable to deal realistically with his world.

These several lines of social research and theory lead to the conclusion that educational aspirations and self-estimates of intelligence are mutually influential. We would expect, on the one hand, that as educational aspirations rise, from whatever source, it is likely that self-estimates of intelligence will rise as a consequence.[2] We would also expect,

[2] It is interesting in this regard to find in a recent article by Sewell and Shah (1968) that educational aspirations rise where high school students perceive their parents as encouraging them to higher educational attainment. We would expect that where parents have encouraged students to higher education and they have accepted this challenge and set this goal, we would have found their beliefs about their abilities to have risen also.

on the other hand, that if for whatever reason a student's self-estimate of his abilities is shifted upward, his educational aspirations would rise as a consequence.

Although we understand the mutual influence of these personality characteristics, our main interest in this chapter is to demonstrate that students' educational aspirations vary in accordance with self-estimates of intelligence, even when the more familiar correlates of educational aspirations such as intelligence or social background are controlled.

THE SPECIAL POPULATION STUDIED

In the analysis presented in this chapter a special group of respondents is studied. We deal with six variables simultaneously, and we eliminated several categories of students because of small numbers, or restriction of range on these variables. Negro students, and students with Jewish religious preference were eliminated because of their small numbers. Non-Catholics in the parochial schools were eliminated for the same reason. Private school students were eliminated because the restriction of range on reading test scores, educational aspirations, intelligence estimates, and father's education would have made the analysis not worthwhile. In preparing the data for analyses, any students not responding to any of the items involved also were dropped. Thus, the total population of students was reduced to 5137.

This procedure was carried out first in preparation of material for Table 8.4. The data for Table 8.2 and 8.3 were prepared subsequently. If we had made the cross-tabulations presented in these two tables first, we would have included all of the students. It did not seem to us to be worthwhile, given the expense of additional analyses, to go back and make the analyses on the total population. Thus, Tables 8.2 and 8.3 deal only with the 5137 students selected as described above. Accordingly, Table 8.1 presents the response distributions for the questions on self-estimates of intelligence and educational aspirations only for this selected group of students.

The material presented in this chapter thus deals with white, public school Protestants and Catholics, and parochial school Catholics, who answered the questionnaire items involved in the analyses.

DISTRIBUTION OF EDUCATIONAL ASPIRATIONS BY SELF-ESTIMATES OF INTELLIGENCE

Table 8.1 presents the response frequencies for all students for aspirations and self-estimates. The item on self-estimates of intelligence is, of course, the same that we analyzed in Chapter 7 just preceding. The item on educational aspirations is the one we have used in other

TABLE 8.1 Selected response frequencies for self-estimates of intelligence (Item 126) and educational aspirations (Item 256)

How would you say you compare in intelligence with other high school students in the United States?

	%	(*f*)
1. I am definitely below average in intelligence	1.6	83
2. I am slightly below average in intelligence	5.8	301
3. I am just about average in intelligence	36.4	1884
4. I am slightly above average in intelligence	25.6	1322
5. I am definitely above average, but not among the highest in intelligence	26.7	1375
6. I am among the highest in intelligence	3.3	172
	99.4	5137

What is the greatest amount of education you expect to have during your life?

1. I don't expect to finish high school	0.5	25
2. I expect to graduate from high school	12.8	671
3. I expect to obtain vocational, business school, or junior college training	22.1	1143
4. I expect to obtain some (less than four years) regular college training	9.8	509
5. I expect to graduate from a regular four-year college	36.6	1896
6. I expect to study for advanced college degrees	17.3	893
	99.1	5137

chapters as an independent variable, in reference to student attitudes and beliefs.

Table 8.2 presents a cross-tabulation of the response frequencies for these two characteristics. It shows a significant relationship between educational aspirations and self-estimates of intelligence. However, the relationship presented cannot be taken simply at face value because studies over the past generation of educational attainment and aspiration lead inescapably to the conclusions that the student's intelligence (measured by standardized tests), his father's education, his father's income, and the student's sex are independently related to educational aspirations and attainment. The relationships are strong and positive throughout a very large number of studies, regardless of the differences in subjects, procedures, methods, and variables controlled. (Sewell, Haller, and Straus, 1957; Sewell, 1964; Sewell and Armer, 1966; Lavin, 1965; Sewell and Shah, 1967 and 1968; Folger, Astin, and Bayer, 1969, provide references and reviews of the relevant literature.)

Moreover, in our own analysis in the preceding chapter we also found that self-estimates of intelligence are indeed correlated with some of the characteristics just noted above; to recall, sex, father's education, and reading test scores all are related to these self-estimates. Our data in this chapter also confirm that these characteristics are related to

TABLE 8.2 Educational aspirations (Item 256) by self-estimates of intelligence (Item 126)

Self-Estimates of Intelligence	*Aspirations*						
	Less Than High School	*High School Graduate*	*Vocational, Business, or Junior College*	*Some College*	*College Graduate*	*Advanced Degree*	*Total*
Definitely below average	1	21	30	11	16	4	83
Slightly below average	4	82	97	42	62	14	301
Just about average	16	388	592	209	546	133	1884
Slightly above average	2	117	252	146	578	227	1322
Definitely above average, but not among the highest	2	59	162	100	634	418	1375
Among the highest	—	4	10	1	60	97	172
TOTAL	25	671	1143	509	1896	893	5137

TABLE 8.3 Students aspiring to college graduation or more after secondary school by socioeconomic characteristics

	Number Aspiring to College Graduation or More	*%*	*Total*
Father's Education			
Low	745	39.1	(1906)
High	2044	63.1	(3229)
Reading Test Score			
Low	277	26.8	(1034)
Average	801	45.7	(1752)
High	1711	72.8	(2349)
10th Grade	1519	55.2	(2751)
12th Grade	1270	53.3	(2384)
Male	1460	65.3	(2237)
Female	1329	45.9	(2898)
Protestant—Public School	1067	49.1	(2171)
Catholic—Public School	320	37.9	(843)
Parochial School	1402	66.1	(2121)

educational aspirations. Table 8.3 presents this information showing the well-known positive relation between aspirations and being male, having a higher father's educational background, and a higher measured intelligence. The greater Protestant versus Catholic public school percentage, and the greater parochial versus public school percentage, reflects the higher socioeconomic student background.

Therefore, given the many past studies as well as our own data, it is imperative that we try to control these influences while analyzing the relationship of self-estimates to aspirations because, as things stand, the positive correlations shown in Table 8.2 may be an artifact; it may simply express the fact that underlying characteristics such as father's education or reading test scores are correlated with both aspirations and self-estimates. Thus, in order to find out whether these two characteristics are correlated in their own right, we will look at their relationship while controlling for religion, sex, grade in school, father's education, and reading test score.

THE RELATIONSHIP OF EDUCATIONAL ASPIRATIONS TO SELF-ESTIMATES, CONTROLLING FOR OTHER VARIABLES

In Table 8.4 we present the percentage of American secondary school students who aspire to complete a four-year college education or more, that is, respondents selecting either the fifth or sixth statement describing their educational aspirations as presented in Table 8.2 previously. These are tabulated by self-estimates of intelligence, while controlling for other related characteristics.

This break for educational aspirations is the one that best equalizes the distribution into high aspirers and low aspirers for further education.[3] The classification of self-estimates of intelligence is threefold, using the same division as previously in Chapter 7. As for the other characteristics, the parochial-public school distinction and the Protestant-Catholic distinction in the public schools, as well as the male-female distinction, are self-evident. The classification of father's education separates fathers whose education was reported as high school graduate or more from those who are less than a high school graduate. The reading test scores are divided as usual into the top, middle, and lowest thirds of the distribution, eliminating the first decile. Since grade in school made no difference in aspirations, as previously shown (Table 8.2), the tenth and twelfth-grade categories of students were combined.[4]

On inspection of Table 8.4 it is clear that self-estimates of intelligence and educational aspirations are substantially related, even when other influences are controlled. We are able to see the steady increment in the percentage of students with higher educational aspirations as high self-estimates of intelligence rise. For illustration, we find in the upper left-hand entries that the percentage wanting to complete college increases from 14 to 42 as self-estimates rise, and in the next column that the percentage increases from 27 to 42 to 60.

In addition to this visual inspection, we can make a test of significance. The data can be analyzed by using a sign test for the significance of the differences between these cells. We can compare high, middle, and lower

[3] An analysis also was made for a different division of educational aspirations, namely, between those stopping with completion of high school or less and those who wanted education beyond high school. The results yield the same conclusions as those reported here.

[4] Before collapsing the tenth and twelfth-grade groups, we tested the hypothesis that the relationship of father's education to aspirations should be greater for the twelfth than the tenth-grade students; that is, the percentage gain in students aspiring to complete college, from low to high father's education, should be greater in the twelfth grade. The hypothesis arises from the assumption that the influence of different social background does not fully take hold until the student gets older and moves closer to actual decisions about his educational future.

Using the sign test technique described in the text that follows, we compared the size of the difference in percentage of students aspiring to complete college, from high and low educational backgrounds, for the tenth and twelfth grades. A larger difference in the twelfth-grade group would support the hypothesis. Of the 54 possible comparisons, the blank cells reduce the number of actual comparisons to 28. Of these, in 16 cases the twelfth-grade difference is larger and in 12 cases the tenth-grade difference is larger. This distribution is not statistically significant.

An appraisal of third order interaction effects was made also, examining the relationship of father's education by grade in school to aspirations, separately by religion, sex, and reading test score. None of these revealed significant relationships. A similar analysis was made to test the hypothesis that the relationship of self-estimates of intelligence to aspirations increases from the tenth to the twelfth grade. Of the 36 possible cases, there were blank cells reducing the actual comparisons to 18 in number. Of these, 9 show the twelfth grade to have the larger difference, and 9 for the tenth grade. Again, this distribution is not statistically significant. Similar tests were made for relationships of sex and religion and there was no significant difference for the tenth and twelfth grades.

TABLE 8.4 Percentage of students aspiring to college graduation

			Public School Protestants					
Father's Education			LOW			HIGH		
Reading Test Score			LO	AV	HI	LO	AV	HI
Self-Estimates of Intelligence								
Male	Definitely below to just about average	%	14	27	35	47	50	75
		N	(80)	(86)	(23)	(73)	(72)	(36)
	Slightly above average	%	42	42	60	39	74	83
		N	(19)	(43)	(42)	(23)	(57)	(71)
	Definitely above average to among highest	%	—	60	87	54	91	94
		N	(7)	(30)	(55)	(13)	(46)	(139)
Female	Definitely below to just about average	%	7	16	36	23	28	38
		N	(127)	(141)	(44)	(69)	(120)	(74)
	Slightly above average	%	30	23	45	23	47	69
		N	(20)	(48)	(53)	(13)	(70)	(97)
	Definitely above average to among highest	%	—	36	56	45	54	78
		N	(5)	(36)	(87)	(11)	(46)	(195)

Percentages are omitted where N is less than 10.

self-estimates of intelligence in all instances where students are equated on other characteristics. To illustrate, in the upper left-hand column we compare 14 to 42 per cent, and in the next column we compare 27 to both 42 and 60 per cent, and also 42 to 60 per cent. In these comparisons the students with higher self-estimates have the higher percentage of college aspirations.

In theory there are 108 possible comparisons. The blank cells (where the number is less than 10) are 11 in number and they reduce the possible comparisons by 19, leaving 89 actual comparisons to be made. Of these, in 80 comparisons the students with the higher self-estimates have the higher percentage aspiring to complete college or more. There are six negative cases and three ties. Applying the sign test for significance of these differences (Mosteller and Bush, 1954, page 313), we find the difference to be significant well beyond the .01 level.

Analysis of these differences within the major subgroups, that is, by sex, father's education, reading test score, and religion, reveals no interaction effects. Thus, we can conclude that self-estimates of intelligence are strongly and positively related to higher educational aspirations, even when students are equated on the other characteristics known to influence aspirations.[5]

[5] In the course of our analyses we cross-tabulated the information presented in Table 8.2, that is, the cross-tabulation of aspirations by self-estimates of intelligence, for each of 72 conditions involving the cross-classification of father's education, reading test score, type of school, religious preference, sex, and grade in school. *Tau* was used as a measure of relationship between these two variables in each of the 72 instances. These *tau* values are stable over the 72 conditions, with the four negative cases out of the 72 instances showing no pattern. The range on the upward side was to a value of .46. On the whole, there is a stable positive relationship between aspirations and self-estimates which stands up well under these conditions of partialing out the possible effects of the six variables mentioned above.

or more after secondary school by characteristics

Public School Catholics						*Parochial School Catholics*					
Low			High			Low			High		
LO	AV	HI	LO	AV	HI	LO	AV	HI	LO	AV	HI
19	23	27	25	24	47	43	72	79	37	76	78
(54)	(48)	(11)	(53)	(49)	(15)	(30)	(36)	(33)	(35)	(78)	(72)
13	47	90	40	48	68	70	63	86	57	91	88
(15)	(17)	(10)	(20)	(23)	(22)	(10)	(24)	(28)	(23)	(66)	(103)
—	44	61	50	76	90	—	90	94	—	90	96
(4)	(18)	(23)	(10)	(17)	(30)	(5)	(10)	(49)	(9)	(51)	(230)
8	13	12	17	37	44	19	28	51	28	40	50
(62)	(48)	(17)	(46)	(38)	(25)	(53)	(86)	(39)	(105)	(177)	(121)
—	36	57	—	50	56	36	42	63	50	61	68
(6)	(11)	(23)	(6)	(14)	(36)	(11)	(24)	(54)	(10)	(67)	(142)
—	50	72	—	53	83	—	31	73	—	67	82
(6)	(10)	(18)	(4)	(15)	(29)	(1)	(13)	(51)	(6)	(18)	(250)

OTHER CHARACTERISTICS RELATED TO EDUCATIONAL ASPIRATIONS

There remains for us only to comment on the information in Table 8.4 with reference to other characteristics in the table, noting that on the whole they corroborate the results of prior research on educational attainment and aspirations. Using the same sign test procedure for significance, we can report that the reading comprehension test scores as well as father's education are positively related to the higher percentages of students aspiring to complete college or beyond. For both of these variables the relationship is statistically significant at the .01 level. Note that both of these hold up independently of each other, and independently of sex, religion, and self-estimates of intelligence.

The inspection of Table 8.4 also shows that the previously reported higher educational aspirations of males is evident in the higher percentages here of the male students aspiring to college graduation. Note, however, that while the overall difference favors the males, the statistically significant differences occur for public school Protestants and the parochial school students, while the male-female difference is not significant for the public school Catholics.

In examining religion, we compare only the public school Protestants and Catholics, the parochial school students not being comparable in the strict sense because of the basis of their selection. Since very small numbers are involved, the conclusions are only suggestive. Examination indicates that there is no difference between the two groupings by religious preference. However, for boys alone, the Protestants have higher percentages aspiring to complete college, a difference significant at the .05 level; whereas for the girls the situation is reversed, although not

significantly so. We can say that among this small group there seem to be no overall differences in the public schools between the Protestants and Catholics, but one would hold the hypothesis that perhaps religious differences operate separately for males and females.

In summary, we find that what one believes about his intelligence is significantly related to educational aspirations, and in addition is related to the powerful forces of intelligence, sex, and social background. It is easy to overestimate the importance of a relationship from simple cross-tabulations such as presented here, in the absence of a multiple regression analysis, and even though we demonstrate large percentage differences of high-aspiring students according to how intelligent they believe they are, much variance in educational aspirations still remains to be explained. Nevertheless, we believe that we have added to the knowledge about the correlates of differing educational aspirations by showing that self-estimates of intelligence are an independent influence; and we note in conclusion that self-estimates of intelligence may in the end, through wise intervention and counseling, be more amenable to change than are such characteristics as father's education, sex, and reading test scores.

9

Reporting of Test Results

PROFESSIONAL persons associated with the production, administration, and use of standardized tests and their results share several beliefs about why intelligence test scores should not be routinely reported to students taking the test. Concern has been expressed about the potentially disturbing effects of giving information to students who do not perform well on tests. Concern also has been visible about the likelihood of misunderstanding of the meaning of the test results and also about the possible too rigid use of test information, whether by the child in forming his self-image or by the parents or inexperienced teachers in setting their expectations for the child's performance. For example, it is clear that the early and inappropriate classification and labeling of a child in regard to his ability can be expected to generate undesirable effects. In the case of a score that seriously underestimates the child's "true" ability, such classification could lead to neglect in providing a sufficiently stimulating and challenging environment to permit the full development of the child's "potential." In the case of a score that seriously overestimates the child's ability, this classification could lead to the setting of unrealistically high achievement goals, with the consequent experiencing of failure and frustration.

In rather sharp conflict with this set of professional sentiments is the fact that it is natural for a person to have interest in information about himself. If the information is about a personal attribute as important in the modern world as intelligence test scores, it is hardly surprising that the inaccessibility of test result data has become a major focus of criticism of current testing practices. Indeed, our data in this chapter show that lack of knowledge of test results is quite widespread, with many

respondents reporting that they have received no information at all or only a general idea.

In this chapter we examine the reports of our national sample of students and of the parochial and private school groups about the information they have received on their intelligence test results, and then go on to analyze in some detail their beliefs and attitudes about who should have information reported to them and under what kinds of conditions.

EXPERIENCE IN LEARNING ONE'S OWN TEST RESULTS

There is substantial disagreement in professional opinion about whether or not pupils should receive information about their intelligence test results and if so, at what age, and in what form it should be provided. We would expect that these disagreements at the policy level will be manifest in considerable variation in the kind of intelligence test information that reaches the students. In contrast, the policy of organizations such as the College Entrance Examination Board in regard to the reporting of college entrance test information is standardized and made public: all students may obtain percentile results and interpretations upon request. We would then expect that: (1) the level of information reception on college entrance tests will be higher than that for intelligence tests; and (2) the description of the quality of feedback received from college entrance tests will be less varied.

General Findings

Respondents' reports of the test information they received is presented in Table 9.1. There is clearly a great deal of variation in the feedback of intelligence test results. Considering now only students who have been tested, 31 per cent of the public school students said that they had not been given any information about their intelligence test performances; another 24 per cent reported having received only a general indication of how well they did, while 45 per cent reported that they were given complete information about their test results.

The distribution of information about intelligence testing among private school students was virtually identical to that for the public school sample. Among parochial school students, the level of information reception was found to be generally higher: 53 per cent were given complete information, 19 per cent received general information, and 29 per cent received no feedback.

As for college entrance tests, the frequency of getting information is much higher. In the public schools, 65 per cent of the students taking college entrance tests reported receiving specific information. But there are marked differences between the types of schools. The level of feedback is highest among private school students, where over 99 per cent

TABLE 9.1 Specificity of reporting of intelligence and college entrance test results (Items 153 and 182): *"Have you ever received any information about how well you did on an (a) intelligence test (college entrance test) you took in school?"*

	Secondary School Students					
	Public		*Parochial*		*Private*	
	Intelligence Tests %	*College* Entrance Tests* %	*Intelligence Tests* %	*College* Entrance Tests* %	*Intelligence Tests* %	*College* Entrance Tests* %
Received specific results (I.Q. or percentile score)	38	60	47	76	38	95
Received both test scores and general information	7	5	6	6	5	4
Given a general idea of how well I did	24	8	18	6	23	0
Did not receive any information	31	28	29	13	34	0
	100	101	100	101	100	99
	(4483)	(1013)	(2427)	(917)	(1128)	(586)
No Response; Does Not Apply**	(838)	(1243)	(209)	(300)	(70)	(8)

* Only twelfth-grade students were included on these distributions.
** Respondents who reported never having taken an intelligence or college entrance test, who were instructed not to respond to this question, and a small number who failed to respond to the item even though such a response would have been appropriate.

TABLE 9.2 Specificity of reporting of intelligence and college entrance scores (Items 153 and 182) by test-taking experience

	Specific Results %	*General Idea* %	*No Information* %	*Total* %	(*f*)
			Public School Students		
Intelligence Test-Taking Experience: ($p < .001$)					
Several	51	23	26	100	(2860)
Once	37	24	38	99	(1214)
Not Sure	26	22	51	99	(379)
College Entrance Test-Taking Experience:* ($p < .001$)					
Several	84	6	10	100	(286)
Once	59	8	33	100	(665)
Not Sure	39	6	55	100	(62)
			Parochial School Students		
Intelligence Test-Taking Experience: ($p < .001$)					
Several	60	17	24	100	(1691)
Once	40	24	36	100	(568)
Not Sure	25	17	58	100	(162)
College Entrance Test-Taking Experience:* ($p < .001$)					
Several	91	4	5	100	(535)
Once	71	8	21	100	(353)
Not Sure	41	14	45	100	(29)
			Private School Students		
Intelligence Test-Taking Experience: ($p < .01$)					
Several	41	23	35	99	(856)
Once	32	22	45	99	(209)
Not Sure	20	24	56	100	(54)
College Entrance Test-Taking Experience: (n.s.)*					
Several	100	0	0	100	(567)
Once	—	—	—	—	(17)
Not Sure	—	—	—	—	(2)

* Only twelfth-grade students were included on these distributions.

reported having received specific results. The corresponding proportions for the parochial (82 per cent) and public schools (65 per cent) show progressively lower levels of information reception.

One likely source of variation between schools is that the students have different rates of exposure or frequency of experience with both intelligence tests and college entrance tests. Recall that nearly all (Chapter 4) of the senior private school students have taken college entrance

examinations several times, while only 13 per cent of the public school students have done so. One would expect that the relationship between amount of test experience and specificity of information received would be positive and Table 9.2 confirms this. The differences in information received by the "taken several times" and the "may have taken, but not sure" groups of respondents are vast. The differences in the distributions of the "several" and "once" groups were also quite large.

A second possible source of variation between schools in information presented about test performance to students would come from school policy differences. As we can see in Table 9.3, the large majority of students who do receive information about their performance on tests obtain it from secondary school teachers, principals, or guidance teachers. Thus, if there were differences between schools in policies on feedback of test information, and this were implemented by the school staff, it should have a strong influence on the results reported by the students since they are evidently dependent on school personnel for information. Indeed, we see that the higher level of information feedback to parochial school students, as compared to public and private school students, is in accord with the information on testing practices, given in Goslin's companion study (*Teachers and Testing*, 1967) reporting a survey of these same school personnel; his study clearly showed that standardized testing received greatest emphasis in the parochial schools.

One thing at first glance seems hard to explain. We saw that the feedback of intelligence test results was very similar for the public and private schools. On the basis of the private school students' reports of much more experience in taking intelligence tests, and the data in showing the relationship between test-taking experience and feedback, we would have expected the private school students to have reported more specificity in feedback. However, Goslin's study also shows that many more private school teachers would never report any test results to students. Thus, the greater test exposure is counteracted by the lesser reporting of results, thereby reducing the reported feedback by private school students below the parochial school students.

We turn now to a review of the social background and personality characteristics of those students receiving information of high specificity. In this analysis of correlates of test information feedback, we focus on intelligence tests rather than college entrance examinations, because the limited and sharply defined basis for exposure to the college entrance tests does not permit us to deal with the whole population of students.

Social Background Characteristics

Relevant data on these characteristics are presented in Table 9.4.1, and in Tables 9.4.2–9.4.3 deposited with the NAPS. We find no statisti-

TABLE 9.3 Responses to Item 157 and Item 185: *"If you have learned your test results, who gave them to you the last time you learned them?"**

	Secondary School Students					
	Public		*Parochial*		*Private*	
Source	*Intelligence Tests* %	*College** Entrance Examinations* %	*Intelligence Tests* %	*College** Entrance Examinations* %	*Intelligence Tests* %	*College** Entrance Examinations* %
School Personnel, Teacher, Counselor, Principal	87	81	75	72	69	87
Parents	4	3	3	1	14	0
Testing Agency	4	11	17	21	9	9
Another Source	5	5	5	5	8	4
TOTAL	100 (3215)	100 (843)	100 (1817)	99 (957)	100 (701)	100 (663)

* Included in this table are only those who have taken the test and received information about their performance.
** Twelfth-grade students only.

TABLE 9.4.1 Specificity of reporting of intelligence test results (Item 153) by social background variables

	*Public School Students**			
	Information received about intelligence test results:			
	Specific Results %	*General Idea* %	*No Information* %	*Total* % (f)
Father's Education: (n.s.)				
Less than 12th Grade	43	23	33	99 (2101)
High School Graduate	47	23	31	101 (1283)
Some College	47	25	28	100 (528)
College or more	49	24	27	100 (495)
Sex: (n.s.)				
Male	47	23	30	99 (1986)
Female	44	23	33	100 (2467)
Age: ($p < .001$)				
10th Grade	40	25	35	100 (2450)
12th Grade	51	22	27	100 (2003)
Race: ($p < .01$)				
White	39	23	38	100 (4099)
Negro	29	29	42	100 (260)
Religion: (n.s.)				
Protestant	48	23	28	99 (2354)
Catholic	46	23	31	100 (997)
Jewish	52	24	24	100 (189)

* Respondents answering the intelligence test experience item with "Don't Know" or "Have Never Taken" are not included in these tables.

cally significant association between the education of fathers and the respondent's receipt of specific information, even though there are some trends favoring the group from the higher educational background. This may simply reflect the higher experience rate with intelligence tests of this group, as reported earlier.

Only in the parochial schools do we find that the sex of the student makes a significant difference; here the percentage of males receiving information about their test performances is greater than the percentage for females. Additional analysis revealed that this difference is not due to the higher rate of test-taking experience reported by parochial school males, since males received more feedback than females at each level of test-taking experience (see Table 9.5 deposited with the NAPS).

We see from the table that white students, more frequently than Negro students, report having obtained specific results about their test performance.

The respondent's religious affiliation was not significantly related to reception of information about test performance.

In contrast, grade in school was significantly a part of the picture. In

TABLE 9.6.1 Specificity of reporting of intelligence test results (Item 153) by reading test score and educational aspiration

	*Public School Students**			
	Information received about intelligence test results:			
	Specific Results %	*General Idea* %	*No Information* %	*Total* % (*f*)
Reading Test Score: ($p < .001$)				
Low	36	24	40	100 (1183)
Medium	46	23	30	99 (1515)
High	53	22	24	99 (1513)
Educational Aspiration: ($p < .001$)				
High School or less	37	23	40	100 (932)
Some College	44	23	33	100 (1532)
College B.A.	50	24	26	100 (1300)
Advanced Degree	52	24	24	100 (639)

* Respondents answering the intelligence test experience item with "Don't Know" or "Have Never Taken" are not included in these tables.

the public schools, for example, some 51 per cent of the seniors reported receiving complete information about their test performance, while only 41 per cent of the tenth-grade students reported this. It is noteworthy that even in the private schools there are substantial differences in the degree of specificity of feedback. We do know that high school seniors clearly have had more experience with intelligence testing than high school sophomores, as reported earlier, and that in the private schools the major change between the two grade levels lies in an increasing proportion of seniors who have taken an intelligence test more than once. In this case we would argue both for greater opportunity for information to be obtained because of this higher frequency of testing, and possibly also for the higher salience or interest in finding out one's test results because of the relevance for the seniors to their career plans.

Reading Test Scores and Educational Aspirations

Both measured intelligence and aspirations for college are positively related to having received specific information about intelligence test results and college entrance test results. Table 9.6.1, also Tables 9.6.2–9.6.3 deposited with the NAPS, present the data. In the public schools, for instance, 40 per cent of the students planning to terminate their education at the high school level report that they have received no information at all about their intelligence test performances; the comparable figure for the college bound students is 24 per cent. More than half of this latter group report having received specific results, while a third of the former indicate they were given specific test scores.

Personality Characteristics

Are there any relationships between personality characteristics of our respondents and the information they report having received about their performances on standardized tests? Four of the six personality attributes measured in this survey: the identity confusion, introspective self-concern, and self-confidence factor scores, and the index of intellectual elitism-equalitarianism showed no consistent or significant relationships to specificity (see Tables 9.7.1–9.7.3 deposited with the NAPS).

Fatalism was one of the two characteristics found to be related to information feedback, in that those high in fatalism reported less frequent receipt of information about their test results. As we know, fatalism is tied to other characteristics already discussed as correlated with low feedback. In addition, it seems likely that knowledge of where one stands on a dimension of some significance such as intelligence would be important to some people, but to a fatalist with a generally passive orientation toward life this would be less salient because such knowledge about one's self is viewed as of less instrumental value. Hence, he would exert less effort to discover it because it is not useful and in the end really does not matter.

Self-esteem was the other characteristic, this being positively related to more information feedback about test scores. In all three types of schools we find a higher proportion of the high self-esteem group reporting that they have received specific information. The interpretation here is similar to the above for fatalism, in that it is correlated with other variables associated with feedback.

To sum up, our picture of the secondary school student who is more likely to have received information of a specific sort about how he did on intelligence tests and college entrance tests is the following: he is more likely to be white and in the twelfth grade; he is likely to score higher on the reading test, to have higher aspirations, and to be lower in fatalism and higher in self-esteem.

Father's Knowledge About Students' Intelligence

Closely related to the students' reports of the information received about their test performances are their descriptions of how much information their fathers have received. Item 231 in the survey asked: "Does your father know your intelligence test scores?" Roughly one-half of the students (public 43 per cent; parochial 57 per cent; private 64 per cent) reported that their fathers had at least a general idea of their intelligence or knew their specific test scores. As one would expect, there is a strong and significant relationship between students reporting that they have received specific information and also reporting this for their fathers. Moreover, the characteristics of the students reporting that their fathers

know their intelligence are similar to the characteristics of students reporting that they had received specific information.

What is new is the appearance of positive relationships between (1) father's education and (2) his religious affiliation (being Jewish), and the report that he has more information about his son's or daughter's intelligence. In the public schools the proportion of highest class students reporting that their fathers know their specific intelligence test results is more than twice that of the lowest group (29 vs. 13 per cent). This significant social class difference is also strongly evident in the differences between the types of schools in percentage of students reporting knowledge by fathers, as mentioned just above. With respect to religious affiliation, more Jewish students (30 per cent) than either Protestant (19 per cent) or Catholic (17 per cent) indicate that their fathers know their specific test results.

BELIEFS AND ATTITUDES ABOUT REPORTING TEST SCORES

In this section of our report we continue our inquiry into some of the questions associated with the reporting of information on intelligence test and college entrance test results. We asked the students to say how interested they are in finding out the results of the tests, and we asked them for their attitudes about certain policy issues involving the feedback of test results to themselves and to their parents.

General Findings

1. *Interest in Test Results*[1]

(a) *Intelligence Tests.* Students described the extent of their interest in intelligence and college entrance tests results with the responses in Table 9.8. The majority in all three schools show a strong interest in finding out how well they did on each type of test. Our assumption is that it is natural for a person to have an interest in any facts about himself, particularly those which permit him to make a comparison of himself with others. If someone knows something about him that he himself does not, then he is likely to try to find it out. In particular, his intelligence is of importance to him, of salience to his work or his achievements, so that where he stands in relation to others is a matter of significance.

Still, there are 10 to 15 per cent of the students in the three types of schools who are not very much interested in reports on their intelligence test results. Probably the students expressing lack of interest include many for whom intelligence is not a very important dimension of self-evaluation. We show later that the lowest levels of interest in re-

[1] Respondents indicating "Don't know" or "Have not taken" on the intelligence and college entrance test-taking experience questions were not permitted by the questionnaire instructions to answer these "Interest" questions and therefore are not considered in the present discussion.

TABLE 9.8 Responses to Item 158 and Item 186: *"How interested were you in finding out how well you did on the test?"**

	Secondary School Students					
	Public		*Parochial*		*Private*	
	Intelligence Test %	*College Entrance Test*** %	*Intelligence Test* %	*College Entrance Test*** %	*Intelligence Test* %	*College Entrance Test*** %
Not at All Interested	4	3	3	1	5	2
Not Very Interested	10	5	8	3	11	3
Moderately Interested	33	24	29	16	32	18
Very Interested	53	68	60	79	52	77
TOTAL	100	100	100	99	100	100
	(4419)	(990)	(2420)	(909)	(1102)	(585)

* Respondents for whom relevant information was lacking (e.g., those reporting not having taken a test) are excluded from the table.
** Only twelfth-grade students were considered in College Entrance Test attitudes.

porting of test results occur among those respondents lowest in ability or aspiration, and who likely place higher value on other attributes. The group of uninterested students also may include those who have been told that results are not available, who have been "cooled-out" by the school system, with a consequent reaction of "Who cares." Thus, the attitudes are a consequence of the attitudes and practices of many teachers and counselors that students should not, in general, have access to their intelligence test results (see Goslin, 1967). An indication that students' interest may be related to their teachers' orientation is provided by the discontinuity between student interest in their test results and their efforts to obtain this information. For, contrary to what one would predict from the strong interest evinced by the majority of students, their teachers report that requests by pupils (or their parents) for information about intelligence test performance are relatively infrequent. Although this latter finding is perhaps a commentary on the students' and parents' lack of knowledge about the availability of test data or on parents' general apathy vis-à-vis the school, we cannot dismiss the possibility that some students and their parents do not bother to ask about test results because they, correctly it seems, perceive that the teacher is unwilling to provide this information.

Another facet of these data on interest in obtaining intelligence test results is the difference in attitude distribution among the three types of schools. Students in the parochial schools show a stronger interest than do those in either the public or the private schools. This is not a consequence of being Catholic because our analysis later shows that Catholics

in the public schools are somewhat less interested in test results. Two explanations can be offered for this finding. First, we have seen that more parochial students receive specific test information than do students in the other schools. What we are suggesting is that the reporting of test results, rather than satisfying curiosity, may stimulate even greater interest. A second explanation derives from Goslin's (1967) survey of the beliefs and practices of teachers, counselors, and principals in these three types of schools. Goslin's data indicate that parochial school personnel report greater emphasis on, and greater use of, intelligence testing results than do personnel in the other types of schools. If testing plays a more important role in the education of parochial school students, then it is hardly surprising to find that these students should be more interested in, and presumably more concerned about, their intelligence test performance.

(b) *College Entrance Tests.* The level of interest in college entrance test results is higher than that expressed for intelligence test results (Table 9.8). Two-thirds of the public and more than three-fourths of the parochial and private school respondents—only those at the twelfth-grade level are being considered—indicate a strong interest in finding out how well they did.

Three major reasons can be pointed to in the way of interpreting this "test type" difference. First, let us note that the sample represented in the college entrance test data is a fairly select one. That is, it tends to overrepresent those respondents who are "high" on such dimensions as father's education, reading test, and educational aspiration—characteristics which are, by themselves, positively associated with a strong interest in test results. Second, college entrance testing is most often a voluntary act, the student choosing to participate, whereas intelligence testing is almost always imposed on the individual by some outside agency. We would expect greater interest in the outcome of an activity that was chosen than in one where participation was required (Brehm and Cohen, 1962). Still a third consideration in understanding the greater interest in college entrance test results is the immediate relevance of these results for decisions affecting respondents' college applications. As we see below, the tendency for public school students to report less interest in learning about their test results is directly related to the fact that a smaller proportion of these respondents are definitely planning to attend college.

2. *Reporting Test Results*[2]

Our second main theme is the students' attitudes about reporting test results; that is, what they think should be done about making information

[2] The data on attitudes toward reporting are based on the original samples of respondents. They are not, as in the case for "interest in test results," limited to only those students reporting testing experience (see footnote 1 on p. 144).

TABLE 9.9 Attitudes toward the reporting of test results (Item 232): *"Do you think that high school students should be given specific results (such as I.Q.s or percentile scores) of their performance on intelligence tests?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
No high school students should be given specific results	15	14	31
Only slow high school students should be given specific results	2	1	1
Only "well-adjusted" high school students should be given specific results	8	12	17
Only bright high school students should be given specific results	2	2	2
All high school students should be given specific results	73	71	49
TOTAL	100 (4824)	100 (2438)	100 (1068)
None of the above	8 (437)	7 (176)	10 (125)
No Response	(60)	(22)	(5)

available on their test results. Respondents were asked: "Do you think that high school students should be given specific results (such as I.Q.s or percentile scores) of their performance on intelligence tests?" and "Do you think that high school students should know their scores on college entrance exams?" A third question asked: "Do you think that parents should be given the specific results (such as I.Q.s or percentile scores) of their high school age children's performance on intelligence test scores?" was also included for intelligence tests, since parents may be seen by some as the proper recipients of this information.

The same set of six alternatives was provided as replies to each of these three questions. The extreme points of view were represented by the following two alternatives: "No (parents of) high school students should be given specific results," and "All (parents of) high school students should be given specific results." Partial or selective reporting of test information was represented by three replies, suggesting that only "slow," "bright," or "well-adjusted" students (or their parents) should be given specific results. The sixth alternative, "None of the above," was eliminated from our analyses.

(a) *Intelligence Tests: Students.* The respondents' views on reporting of their own intelligence test results are presented in Table 9.9. As we can see, the majority of respondents, almost three out of every four in the public and parochial schools, feel that *all* students should be given

TABLE 9.10 Attitudes toward the reporting of test results (Item 234): *"Do you think that students should know their scores on college-entrance exams?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
No high school students should be given specific results	5	5	2
Only slow high school students should be given specific results	1	1	*
Only "well-adjusted" high school students should be given specific results	4	3	1
Only bright high school students should be given specific results	2	1	*
All high school students should be given specific results	88	90	96
TOTAL	100 (4918)	100 (2519)	99 (1158)
None of the above	7 (340)	4 (97)	3 (36)
No Response	(63)	(20)	(4)

* Less than 0.5 per cent.

specific information. Knowing what we do about procedures followed in these schools and the reports on information actually received by the students, we find these attitudes of the students substantially at variance with actual school practice and their own experiences.

We note the important difference for the private schools among the three types of schools; namely, the private school students are less favorable toward the feedback of specific results of tests. We have no satisfactory explanation for this unexpected result.

(b) *College Entrance Tests: Students.* The picture that emerges from respondents' opinions about the reporting of college entrance test results (Table 9.10) is quite different from that just described for intelligence tests. Here we find that almost all respondents, ranging from 88 per cent in the public schools to 96 per cent in the private schools, feel that students should be given their own college entrance test results. Note that the trend of the responses across the three school types is opposite to that for intelligence tests. Where public school students were most in favor of reporting intelligence test results, the private school students are the most favorably inclined toward reporting college entrance test data.

(c) *Intelligence Tests: Parents.* As for reporting results to parents,

TABLE 9.11 Attitudes toward the reporting of test information (Item 233): *"Do you think that parents should be given specific results (such as I.Q.s or percentile scores) of their high school children's performance on intelligence tests?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
No parents should be given specific results of their high-school-age children's performance on intelligence tests	13	11	14
Only parents of slow high school students should be given specific results	2	1	*
Only "well-adjusted" parents should be given specific results	7	8	12
Only parents of bright high school students should be given specific results	2	1	2
Yes, all parents should be given specific results	75	78	72
TOTAL	99 (4817)	99 (2469)	100 (1074)
None of the above	8 (438)	6 (146)	10 (118)
No Response	(66)	(21)	(6)

* Less than 0.5 per cent.

we see that approximately three out of every four respondents feel that all parents of high school age students should be given their children's intelligence test results (Table 9.11). We see from these data that the attitudes toward reporting to the parents are really very similar to the attitudes about reporting to the students (with the exception of the private schools, which we come to in a moment). There seems to be little basis for belief that students, other than 10 to 15 per cent, would not want their parents to have this information. The distributions of attitudes toward reporting to students and parents are remarkably similar in the public and parochial schools. The private school respondents' reluctance to provide intelligence test information to students is considerably reduced where it comes to providing this information to the students' parents. They are similar to the students in the other types of schools, with the trend being slightly lower, but they maintain their more frequent view that only "well-adjusted" persons, parents in this case, should be given specific results.

Relationships Between Interest in Test Results, Attitudes Toward Reporting, and Other Attitudes Toward Intelligence Tests

Before moving on to look at how interest in test scores and attitudes toward reporting relate to characteristics of the students, we will present the correlations between these attitudes and certain other attitudes and experiences reported on earlier, as well as the associations between the items themselves that are under analysis in this chapter.

First, as one would expect, there is a positive correlation between a student's interest in intelligence test results and college entrance test results. Of those who have a strong interest in their college test results, some 80 per cent also fall into this category for intelligence test results.

Reporting of Intelligence and College Entrance Test Results

These attitudes are associated, but to a lesser extent (see Table 9.12 deposited with the NAPS). Analysis of public school students reveals that of those who said "all" students should be told their intelligence test results, 92 per cent also say all students should know their college entrance examination results. However, 68 per cent of those who said "no" students should be given intelligence test results thought that "all" students should learn their college entrance examination results and only 17 per cent of this group said "no" students should learn college entrance examination results. (Contingency coefficient = .40, association significant at $<.001$ level.)

The association between the reporting policies advocated for students and for their parents is sizable (see Table 9.13 deposited with the NAPS). Of those public school students who said "all" students should be told their intelligence test results, 88 per cent said results should be given to "all" parents. Among those who said that "no" students should receive results, 50 per cent said that "no" parents should receive results. (Contingency coefficient = .58, association significant at $<.001$ level.)

As for the relationship between interest in test results and attitudes toward reporting such test results, Table 9.14 shows a moderate but positive relationship. The percentage of respondents favoring the reporting of test scores to each student is highest for those with a strong interest in their own test results. Still, the relationship is small and for practical purposes the interest in test results and a favorable attitude toward reporting test results to students are relatively independent dimensions.

For this reason we looked at the relationship while controlling for reading test score and father's education simultaneously (see Tables 9.15–9.17 deposited with the NAPS). In the public schools, the positive association between interest in test results and a "liberal" reporting policy failed to reach the .01 level of significance only for these groups: low reading test score and high father's education; average reading test score

TABLE 9.14 Attitudes toward reporting by interest in receiving their intelligence test results*

	Public School Students ($p < .001$)			
	Attitudes toward reporting:			
	No Students %	*Selected Students* %	*All Students* %	*Total* % (f)
Slight Interest	26	15	59	100 (528)
Moderate Interest	17	12	71	100 (1341)
Strong Interest	11	12	77	100 (2209)

* Students answering the reporting question with "None of the above" have been eliminated from this analysis.

and medium and high father's education; high reading test score and low father's education. The same trend was present in these groups, however. Holding constant father's education and interest in learning own test results, we find a progressive decrease in liberality of reporting policy among the "very interested" as we move from low to high reading test scores and holding reading test score constant, there is a decrease in liberality as we move from low to high father's education.

What appears to be operating is a complex interaction in which the positive relation of interest to further reporting is limited by higher reading test score and father's education levels. This is consonant with the fact that while strong interest in own test results is positively associated with a liberal reporting policy, interest is also positively associated with high reading test score and father's education levels, which are, in turn, negatively associated with a liberal policy. The same general pattern appears among parochial school students (see Tables 9.18–9.20 deposited with the NAPS). In both types of schools, where high interest in own results is combined with high reading test score and high father's education, we find these students more likely than others to say that test results should be given only to "selected" students.

It also seemed important to look at the relationship between beliefs about the accuracy of intelligence tests and positive attitudes toward reporting test results to students. Table 9.21 presents these cross-tabulations. The relationship is statistically reliable, although small. The percentage differences run about 10 per cent. Thus, while the association is significant, there are many students who favor reporting test scores even though they view tests as inaccurate.

As for the relationship between beliefs in accuracy and interest in finding out test results, Table 9.22 deposited with the NAPS shows that students who doubt the accuracy of tests express less interest ($p<.001$). This significant relationship occurs in spite of the fact that there are contrary pressures working; for example, high reading test score students

TABLE 9.21 Attitudes toward reporting by beliefs in the accuracy of intelligence tests

	Public School Students			
	*Attitudes toward reporting:**			
	No Students %	*Selected Students* %	*All Students* %	*Total* % (f)
Intelligence Tests:**				
Inaccurate	20	15	65	100 (874)
Accurate	14	12	74	100 (3194)

* Table does not include respondents answering the reporting question with "None of the above."
** Respondents giving "No Opinion" answers to the accuracy question have been eliminated.

are more likely to say tests are inaccurate, but also more likely to express more interest in their own results.

Finally, we were also interested in learning how the student's interest in his test results and his attitude toward reporting this information might be related to the kind of feedback he had already received from prior testing experiences. The data for interest level could be expected to go in either of two directions. Respondents provided with no information might be the more curious and therefore show the stronger interest. On the other hand, a second and opposing hypothesis would suggest that feedback from earlier testing might itself stimulate the recipient's curiosity and generate stronger interest in information about intelligence testing. Caution is needed, however, because the association may be mediated by some other variable, such as reading test score, to which both are positively correlated.

The data presented in Table 9.23 provide support for the second hypothesis: 59 per cent of the respondents given specific feedback show a strong interest in learning about their test results, while 47 per cent of the respondents given no feedback at all exhibit such interest. Correspondingly, only half as many of the specific feedback respondents as the no feedback respondents (10 vs. 21 per cent) show little interest in learning about how well they did on intelligence tests. Although it is possible that this association reflects the independent contribution of social class or reading test differences, the data suggest to us that feedback serves to make the issue of test results more salient to the student. Information, rather than just satisfying his curiosity, seems to generate even more interest in intelligence test results.[3]

[3] Some additional support for this assertion is provided by data that relate respondents' interest in their own test results to their answers on a question, "Do you know how intelligent you are?" We find that respondents who describe themselves as "very" or "fairly" certain of how intelligent they are, evince considerably greater interest in learning about their test results than do respondents who have only a "rough idea" about, or do not know, how intelligent they are.

TABLE 9.23 Interest in receiving intelligence test results and attitudes toward reporting by specificity of reporting intelligence test results

Specificity of Reporting of Intelligence Test Results	*Public School Students*			
	Interest level:			
	Slight %	*Moderate* %	*Strong* %	*Total* % (*f*)
Specific Results	10	31	59	100 (2004)
General Information	13	37	50	100 (1040)
No Information	21	33	47	101 (1361)
	Attitudes toward reporting			
	No Students %	*Selected Students* %	*All Students* %	*Total* % (*f*)
Specific Results	9	12	79	100 (2001)
General Information	21	14	65	100 (1036)
No Information	19	13	68	100 (1392)

The relationship between reported specificity of test feedback and attitudes toward reporting test results is presented in Table 9.23. Respondents who have themselves received specific results, favor the reporting of test results: 79 per cent of this group (compared to 65 per cent of those who report receiving "general information" and 68 per cent of those who report receiving "no information") feel that all students should be given precise information about the quality of their intelligence test performance. The overall relationship between these variables is significant ($p<.001$). Thus, we may conclude that interest in one's test results and a belief that test results should be reported to students are more frequent among those who have already received specific intelligence test result feedback.

Social Background Characteristics

Consistent with the major emphasis of this volume, our description now will concentrate on items about intelligence tests. Considering the strong relationships reported in the previous section, little information is lost and much redundancy saved by not reporting in detail the generally similar data obtained for college entrance tests.

1. *Father's Education*

Our initial expectation was that students with higher father's education would show the strongest interest in learning about their intelligence test performance. We assumed that higher status parents are generally more concerned about their children's schooling and that this concern would be translated into greater student interest.

TABLE 9.24.1 Interest in intelligence test results (Item 158) by social background variables

	Public School Students			
	Interest in test results:			
	Not Interested %	*Somewhat Interested* %	*Very Interested* %	*Total* % (f)
Father's Education: ($p < .01$)				
Less than 12th Grade	16	34	50	100 (2082)
High School Graduate	14	31	55	100 (1275)
Some College	11	30	59	100 (526)
College or more	11	35	54	100 (492)
Sex: ($p < .01$)				
Male	17	33	51	101 (1971)
Female	13	33	55	101 (2448)
Age: ($p < .01$)				
10th Grade	14	31	54	99 (2427)
12th Grade	14	35	51	100 (1992)
Race: ($p < .001$)				
White	14	33	52	99 (4070)
Negro	11	23	66	100 (257)
Religion: ($p < .001$)				
Protestant	11	34	55	100 (993)
Catholic	18	32	50	100 (2342)
Jewish	11	23	66	100 (188)

(a) *Interest in Test Results.* The relationship between father's education and interest in intelligence test results is presented in Table 9.24.1, also in Tables 9.24.2–9.24.3 deposited with the NAPS. In none of the three schools is the difference in interest between the highest and lowest levels of father's education larger than 5 per cent, and only in the public schools is this trend a reliable one ($p<.01$). Even this effect, as we shall see, is likely due to correlated differences in reading test ability. We may conclude that the relationship between father's education and interest in test results is insignificant.

(b) *Reporting of Test Information.* Father's education does appear to have an appreciable impact on respondents' orientation regarding the distribution of intelligence test information to students. Low father's education respondents favor the provision of test information to all students, while high father's education is associated with the belief that students should *not* have access to test results (see Table 9.25.1; also Tables 9.25.2–9.25.3 deposited with the NAPS).

We recall that our comparison between the types of schools showed that when the student was specified as the recipient of the test result the private school respondents were less favorable to reporting back than were the other students, but that where parents were specified as recip-

TABLE 9.25.1 Attitudes toward reporting intelligence test results (Item 232) by social background variables

	Public School Students			
	Specific intelligence test scores should be given to:			
	No Students %	*Selected Students* %	*All Students* %	*Total* % (*f*)
Father's Education: ($p < .001$)				
Less than 12th Grade	12	13	75	100 (2347)
High School Graduate	16	12	72	100 (1362)
Some College	18	14	68	100 (526)
College or more	21	16	63	100 (503)
Sex: (n.s.)				
Male	15	14	71	100 (2191)
Female	16	12	73	101 (2607)
Grade Level: (n.s.)				
10th Grade	15	13	71	99 (2706)
12th Grade	15	12	73	100 (2092)
Race: ($p < .01$)				
Negro	9	17	74	100 (306)
White	16	13	72	101 (4383)
Religion: ($p < .001$)				
Protestant	16	12	72	100 (2489)
Catholic	14	12	74	100 (1044)
Jewish	26	17	57	100 (183)

ients there were no interschool differences. The same finding holds for the relationship of father's education to student attitudes. Where parents are the specified recipient of the report, we find that father's education makes no difference: about 75 per cent, for example, in the public schools, regardless of father's education, say that all parents should be given their children's intelligence test results. So we find a dramatic confirmation here of the suggested relationship of social class background to attitude; namely, those students from better-educated, higher social class backgrounds are less in favor of reporting test results back to students, but do not differ from other respondents in their attitude toward reporting test results back to parents.

2. *Sex*

We have earlier demonstrated that male respondents are typically better informed about their intelligence. We expected to find greater interest and more favorable attitudes toward feedback among male respondents, but our data did not confirm this. Instead, the trend shows: (1) a slightly greater interest among female than male respondents in

both the public ($p<.01$) and private schools ($p<.05$); and (2) no differences in attitudes toward reporting of test results.

3. *Grade Level*

The younger tenth-grade respondents show a stronger interest in their intelligence test results, with a difference significant in the public school population. Differences in grade were not associated with attitudes toward the feedback of test results.

4. *Race*

Negro respondents in the public schools (see Table 9.24.1) evince a significantly greater interest in learning about their intelligence test performance than white respondents. Two-thirds of the Negroes, compared to only one-half of the whites, state that they are very interested in finding out how well they did. In the analysis we do not control for differences in reading test scores, but we know the results are not an artifact of this; consideration of the Negro respondent's lower standing on the reading test would lead to the prediction of lesser, not stronger interest, in test results. The greater interest of these respondents seems quite consistent with what we have reported elsewhere on the higher value placed on intelligence, the higher judgments of accuracy of tests, and the importance of tested ability.

The relationship between race of respondent and attitudes toward reporting test information is presented in Table 9.25.1. We find a trend ($p<.01$) in the public schools for the Negro respondent to favor a more liberal policy in providing intelligence test results to students. These data are consistent with the effects of differences in reading test ability or father's education, and so it was necessary to perform an analysis that controlled for these factors. This analysis shows that for the public school students Negro/white differences in liberality of reporting policy are not significant when level of father's education is held constant. It would appear that the apparently greater liberality of Negro students is due primarily to the higher proportion of Negroes from low father's educational background (see Table 9.26 deposited with the NAPS).

5. *Religion*

The first major finding reported in the present chapter was that showing the greater interest of parochial school students in their intelligence test results. That this is an effect of school context rather than of religious affiliation per se is clearly demonstrated by the results presented in this section.

(a) *Interest in Test Information.* Table 9.24.1 presents the relationship between religion and interest in intelligence test results ($p<.001$). We find that 66 per cent of the Jewish respondents, compared to 55 per

cent of the Protestant and 50 per cent of the Catholic respondents, indicate a strong interest in finding out their test results. Also, the proportion of Catholic students (18 per cent) indicating little or no interest, exceeds that found among Jewish or Protestant students (both 11 per cent). Parallel, although nonsignificant, trends appear in the private school results (see Table 9.24.3 deposited with the NAPS).

The strong interest of the parochial school students seems not to be due to the effect of religion. Catholic respondents in the other two school types exhibit lower levels of interest than do members of the other two religious groups. The best explanation for the parochial school results would thus appear to derive from the emphasis on testing in these schools (as reported by Goslin, 1967). The high level of interest among Jewish respondents seems quite congruent with the findings of other studies that have compared the values and achievement orientation of different religious groups (see Strodtbeck, 1958; Lenski, 1961). It might be the case, that reading test score differences mediate this effect; however, the private schools yielded religious differences comparable in magnitude to those described for the public schools, in the absence of any association between religion and reading test score.

(b) *Reporting of Test Information.* An examination of Table 9.25.1 reveals that fewer Jewish (57 per cent) than either Protestant (72 per cent) or Catholic respondents (74 per cent) believe that all students should be given their specific intelligence test results. Correspondingly, we find that a larger proportion of Jewish than either Protestant or Catholic respondents (26 vs. 16 and 14 per cent, respectively) feel that students should not be given any test performance information.

In general, then, we may conclude that religious affiliation creates a sharp differentiation of the two aspects of opinion that we have been considering. Being Jewish is associated with greater interest on the one hand, and advocating a more restrictive policy of information reporting on the other.

To summarize the results reported up to this point, we have identified several factors that differentiate interest and reporting attitudes. We have shown that student interest in test results is strongest in the parochial schools, schools where test use is most extensive. It was the private school students, however, who came out most strongly against a policy of reporting test information. When this information was to be given to students, private school respondents indicated that they did not feel that they should have access to it; when parents were to be the recipients of the test results, school differences in opinion distribution disappeared.

Some relationships of father's education, sex, and grade level to interest attitudes were described: respondents who were female, in the tenth grade, and higher in social class background, generally tended to show

most interest in learning about their own test results. Negroes also showed significantly greater interest in test results. Jewish respondents showed the highest level of interest among the three religious groups, but were most restrictive in their orientation regarding the reporting of test results to students. Finally, restrictive attitudes on feedback were also most frequent among high father's education respondents.

Reading Test Scores, Educational Aspirations, and Experience with Tests

In the first part of this chapter we concluded that respondents with high reading test scores, high educational aspirations, or several experiences with testing and ability grouping were the students who most often reported receiving specific test feedback. Each of these subgroups also shows the strongest interest in finding out about its intelligence test performance. What these data suggest is that the process of finding out one's test results is not merely one of passively receiving feedback, but is also strongly affected by the respondent's motivation to learn about his intelligence. The data to be presented below provide confirmation of this motivational interpretation.

In contrast, our findings for attitudes toward reporting test results are much less clear-cut; the few significant relationships are not really suggestive of an overall pattern.

1. *Reading Test Scores*

The relationship between reading test scores and respondent interest in intelligence test results (see Table 9.27.1; also Tables 9.27.2–9.27.3 deposited with the NAPS) is a strongly positive one. In the public school, for example, we find that more of the high than low scoring students (63 vs. 43 per cent) evince a strong interest in obtaining specific feedback about the quality of their test performance. Correspondingly, we find only one third as many "highs" as "lows" (7 vs. 21 per cent) indicate little or no interest in obtaining feedback.[4] This relationship is significant at well beyond the .001 level in both the public and parochial schools. The private school results do not, however, even approach satisfactory reliability. The lack of interest exhibited by some low reading test respondents must, in part, be due to either the expectation of negative feedback, the irrelevance of intelligence as a dimension for self-evaluation and social comparison for these students, or both of these factors. The strong interest exhibited by high reading test respondents is supportive of our motivational interpretation of the process of information reception.

[4] Considering the positive correlation between reading test performance and father's education in the public schools, the very strong relationship obtained here appears more than sufficient as an explanation of the association between father's education and interest found in the public schools.

TABLE 9.27.1 Interest in intelligence test results (Item 158) by reading test score, educational aspiration, and experience with test-taking and ability grouping

	*Public School Students**			
	Interest in test performance:			
	Not Interested %	*Somewhat Interested* %	*Very Interested* %	*Total* % (*f*)
Reading Test Score: ($p < .001$)				
Low	21	35	43	99 (1167)
Medium	14	33	53	100 (1509)
High	7	30	63	100 (1507)
Educational Aspiration: ($p < .001$)				
High School or less	25	38	37	100 (924)
Some College	13	36	51	100 (1518)
College B.A.	10	31	59	100 (1293)
Advanced Degree	8	23	69	100 (638)
Intelligence Test-Taking Experience: ($p < .001$)				
Several	13	31	56	100 (2844)
Once	14	36	50	100 (1204)
Not Sure	22	35	43	100 (371)
None*				
Ability Grouping Experience Index ($p < .001$)				
Never	16	36	48	100 (2552)
Once	13	31	56	100 (1130)
Twice	12	24	64	100 (569)
Three Times	10	24	64	99 (139)

* Respondents reporting no experience with intelligence tests were instructed not to reply to this question, and are therefore excluded from this table.

As for attitudes toward reporting, the public school data (Table 9.28.1) indicate that respondents with high reading test scores advocate a more restrictive policy. Larger proportions of the low and average groups feel that all students should receive their test results, while high reading test score respondents more frequently say that "no students" should receive this information. The entire table is statistically significant ($p<.001$), even though the differences in percentage terms are not especially large. These results are replicated in the private school data, although the restricted range of reading test scores does not yield an acceptable level of significance.

Data for the parochial schools confirm the finding that those who score low or average favor the widest distribution of test information. High reading test score in this type of school is, however, associated with an orientation toward the selective reporting of test information to "well-ad-

TABLE 9.28.1 Attitudes toward reporting intelligence test results (Item 232) by reading test score, educational aspiration, and experience with intelligence tests and ability grouping

	Public School Students			
	Specific intelligence test information should be given to:			
	No Students %	*Selected Students* %	*All Students* %	*Total* % (f)
Reading Test Score: ($p < .001$)				
Low	14	13	73	100 (1395)
Average	15	10	75	100 (1570)
High	17	14	69	100 (1515)
Educational Aspiration: ($p < .001$)				
High School or less	13	12	75	100 (1106)
Some College	13	12	75	100 (1652)
College B.A.	18	13	69	100 (1353)
Advanced Degree	19	15	66	100 (646)
Experience with Intelligence Tests: (n.s.)				
Taken several	15	11	74	100 (2675)
Taken one	17	13	70	100 (1119)
Not sure	15	15	70	100 (636)
Never taken	13	14	72	99 (147)

justed" students. The overall relationship is significant at the .01 level of confidence.

We saw earlier that strong interest in test results, while showing some association with more liberal attitudes toward reporting test results, was substantially independent, nevertheless, and here we see that those students with high reading test scores express strong interest in learning their results but are not in favor of the routine provision of test information feedback to students.

2. *Educational Aspirations*

In recent years, admission to many colleges and universities has become quite dependent on the students' attainment of satisfactory scores on a variety of aptitude and achievement tests. For this reason alone, the finding of a strong positive correlation between level of educational aspiration and interest in college entrance test results is hardly surprising. Aspiration is not, however, limited to this obvious and practical relationship.

(a) *Interest in Test Results.* In the public schools (Table 9.27.1) we find that only 36 per cent of the students who plan to terminate their

education with high school indicate that they are very interested in learning their intelligence test results. In sharp contrast, almost twice as many (69 per cent) of the students planning to continue their education beyond the baccalaureate degree evince a strong interest in their test results. The positive relationship between aspiration and interest is significant ($p<.001$) for both the public and parochial schools, while the results for the private schools show very little interdependence between aspiration and interest levels.

It is necessary to point out that reading test score differences offer an alternate explanation of these results. We wanted to discover which of these two related dimensions is more closely tied to student interest, and we were also curious as to what the relationship of discrepancies between reading test and educational aspiration levels (for example, the not uncommon case of low ability coupled with high aspiration) would be to interest in learning about test results. The results of this analysis are presented for public and parochial school students in Tables 9.29.1–9.29.2 deposited with the NAPS. There is a relatively balanced interaction effect between reading test score and educational aspiration. With either held constant, the proportion of students who say they are "very interested" in their test results varies directly with the other dimension. Where reading test score and educational aspiration are discrepant, we find high proportions of students who say they are "not interested" in their test results. Overall, however, the least interested are the low reading test score, low aspiration students, and most interested are the high reading test score students who aspire to an advanced degree. The same pattern is evident for parochial school students. Analysis was not made of the more homogeneous private school group.

(b) *Reporting of Test Information.* The relationships between educational aspiration and attitudes toward reporting (see Table 9.28.1; also Tables 9.28.2–9.28.3 deposited with the NAPS) do not yield a consistent pattern of results. In the public schools we find that high aspiration respondents are less likely to favor giving all students their intelligence test results than are low aspiration respondents (66 vs. 75 per cent), while the latter are more likely to prefer either the selective or the no distribution policy. These data are consistent with the results obtained for reading test score and are significant at the .001 level of confidence. The trend, nonsignificant, of the private school data also lies in this direction. The parochial school results, however, present a trend, also nonsignificant, that lies in the opposite direction: more of the low than high educational aspiration respondents in these schools (19 vs. 13 per cent) feel that students should not be given their intelligence test results. We do not, then, draw any conclusion about the relation between aspiration and attitudes toward reporting.

3. *Experience with Standardized Testing and Ability Grouping*

There are some significant relationships between ability grouping and interest in test results, but the direction of these is what we would expect on the basis of the superiority of reading test performance or the higher levels of educational aspiration that characterize respondents with ability grouping experience. From this standpoint the results add little to what we already know about the factors that shape interest in learning about test results.

The relationship between test experience and interest merits closer consideration. The test experience variable, it will be recalled, is categorized at four levels (none, not sure, once, and several times) and we have interest data available for the latter three levels. We find that the proportion of respondents "very interested" in learning about their test results continues to increase even as we move from those groups reporting one test experience to those reporting several such experiences. This increase is on the order of 6 to 10 per cent in the case of intelligence tests, and is even larger, 12 to 15 per cent in the case of college entrance tests.

The earlier examination of feedback information about test performance revealed a pattern of relationships similar to the present data. Together they show that those who are already most often tested and best informed about their performance are still the ones who are most motivated to acquire additional information. They suggest a kind of student who is quite involved with testing and with his own standing in regard to differences in ability.

The general tenor of the results reported in this section may now be summarized. Respondents who are bright and who have high aspirations, those who have had the most experience with standardized testing and a high rate of feedback are the ones most interested in learning about their test results. But we have also seen that these dimensions that seem to promote high interest levels do not substantially affect attitudes toward reporting of test information.

Personality Characteristics

Students who are low in fatalism, high in introspective self-concern, and high in self-esteem are those most interested in finding out results of their intelligence tests (see Tables 9.30.1–9.30.3 deposited with the NAPS). In order to see if fatalism, among these characteristics, was independently tied to interest in test results, we made an analysis holding reading test scores constant. We found that low fatalists still express more interest in learning their test results than do high fatalists. The difference is significant ($p<.01$) for the low and average reading test score groups, and approaches significance ($p<.05$) for the high reading test score group (see Table 9.32 deposited with the NAPS).

As for attitudes favoring the feedback of test results to students, we find that it is the students low in fatalism, high in self-esteem, and who in addition score at the elitist end of our intellectual elitism-equalitarianism dimension, who are against reporting of test scores to students (see Tables 9.31.1–9.31.3 deposited with the NAPS). The data are what one would predict from the lower socioeconomic status of the high fatalist respondent, and a check on this possibility in the public school group indicates that if we compare the two groups at the lowest level of father's education, low fatalists are more likely to say "no students" should receive intelligence test results, while high fatalists more often say "selected" students should be given results. Identical proportions of each group say "all students" should be given their test results. The difference is significant at less than the .01 level. Those whose fathers are high school graduates exhibit a similar nonsignificant trend, and in the high father's education group, low fatalists more often say "no students" and less often "all students" than high fatalists, but the difference is not statistically significant (see Table 33 deposited with the NAPS).

Thus, our picture of the respondent with the strongest interest in his test results show a student who believes that the outcomes of his actions are controlled by himself rather than fate or destiny; who is concerned about the likelihood of his own achievement, and who holds a generally favorable view of himself.

10

Ability Grouping in Schools*

IT HAS TAKEN three decades for "homogeneous ability grouping" of students to become a common educational practice within our schools. Today in most public schools we find some form of classroom grouping, based either on the student's intelligence scores or on his estimated skills and abilities (Goslin, Epstein, and Hallock, 1965). In those schools where grouping is not found, the reasons lie in obstacles of a practical nature rather than in an educational philosophy opposed to the practice. Grouping is a goal widely accepted by educators, and the public also seems convinced of its value. Goslin (1963) reports that a Gallup poll on attitudes toward homogeneous grouping indicated that 61 per cent of the population believed that grouping on the basis of intelligence was a good idea and 71 per cent believed that grouping on the basis of specific skills was desirable.

Only in very recent years has grouping as a practice been seriously challenged by citizens' groups and by those in education concerned with opportunities given to culturally deprived children (Lennon, 1968). It is interesting to note that, for whatever reason, those studies that have attempted to evaluate the practice have thus far revealed no clear-cut implications that might lead to widening or abandoning or even altering the present system. Reviews of this literature (Passow, 1962; Goslin, 1963; Yates, 1966) generally concur in the conclusion that the research findings on the merits of intra-school ability grouping are inconclusive and insignificant.

A review of the literature further reveals a virtual absence of studies that focus on those directly affected by homogeneous grouping, the stu-

* This chapter was prepared in collaboration with Susan Kim.

dents themselves. As we shall see, the majority of students are aware of ability grouping during their school years and realize that, for the most part, it is based on the results of standardized intelligence testing. But we do not know their own perceptions of whether they have or have not been grouped by ability; or if they believe that they have, whether they think they have been in the high-level, moderate, or low-level class grouping, according to ability. Nor do we know in what ways they feel affected by it, what their positive and negative attitudes toward grouping may be, and have any insight into the reasons behind such feelings. What kinds of students hold which kinds of attitudes? The present chapter is an attempt to probe these questions by reporting some data on the experiences and attitudes of American secondary school students in the area of homogeneous ability grouping.

EXPERIENCE WITH ABILITY GROUPING

General Findings

The data on student experience with ability grouping are summarized in Table 10.1. About a third of the respondents report no ability grouping in elementary school, and about a quarter report none in junior high school—at least in the public and private schools. The parochial school student reports somewhat less grouping at these levels, that is, about 46 per cent and 36 per cent, respectively. At the high school level a quarter of the public school students report no ability grouping, while the percentages for parochial and private schools drop to about 17 per cent. The overall amount of ability grouping seems to be largest in the private school. Also, the private school student assumes a clearer knowledge of the fact of having been grouped; that is, he is more likely to say that he definitely has been grouped rather than that he only thinks so.

Nearly all students who report having been grouped feel that they have been grouped into at least an average group, if not an above average or even the highest (see Table 10.2 deposited with the NAPS). How accurate this report is, is another question. This, in part, may reflect what we see in Chapter 11, namely, that respondents tend to report primarily positive effects of test-taking. On the other hand, the fact that in the private school 62 per cent of the respondents report having been grouped in the highest ability group in elementary school may also reflect a shifting of the brighter (and higher-achieving) children from the public to the private school system as they advance to the secondary school level.

We constructed an index to reflect the amount of grouping by summing the "Yes, definitely" responses in elementary, junior high, and high schools. The index ranges from no ability grouping at all ("Never") to the maximum amount of experience possible, which is "Three Times."

TABLE 10.1 Ability grouping experience. Responses to Item 135: *"In the elementary school you attended, were you placed in a group according to your abilities?"* Item 138: *"In the junior high school (7–9 grades) you attended, were you placed in a group according to your abilities?"* and Item 141: *"In the* high school *which you now attend, are* you *in a special group based on abilities?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Elementary School:			
No	20	23	17
I think so	20	12	14
Yes, definitely	20	14	26
There was no grouping by abilities	31	46	39
I do not remember	9	5	5
TOTAL	100	100	101
	(5282)	(2616)	(1191)
No Response	(39)	(20)	(7)
Junior High School:			
No	23	20	10
I think so	20	18	16
Yes, definitely	26	23	50
There was no grouping by abilities	26	36	23
I do not remember	5	4	2
TOTAL	100	101	101
	(5256)	(2562)	(1174)
No Response	(65)	(74)	(24)
High School:			
No	38	24	20
I think so	17	28	22
Yes, definitely	13	27	38
There is no grouping by abilities	29	17	17
I do not remember	4	4	3
TOTAL	101	100	100
	(5257)	(2606)	(1181)
No Response	(64)	(30)	(17)

Findings indicate that the proportion of respondents reporting no experience at all is 60 per cent in the public school, 56 per cent in the parochial school, and 31 per cent in the private school (see Table 10.3 deposited with the NAPS).

We assumed that ability grouping would imply test-taking experience. A test of this assumption reveals that there is, indeed, a strong relationship between these variables (see Table 10.4.1; also Table 10.4.2 deposited with the NAPS). Both in terms of intelligence testing and in

TABLE 10.4.1 Test-taking experience (intelligence tests) (Item 151) by ability grouping experience index

	Test-taking experience:						
	Several %	*Once* %	*None* %	*Not Sure* %	*Don't Know* %	*Total* %	(*f*)
	Public School Students						
Ability Grouping Experience: ($p < .001$)							
None	50	24	16	4	6	100	(3150)
Once	58	23	11	3	4	101	(1304)
Twice	66	20	10	2	3	99	(660)
Three Times	72	20	7	—	1	100	(149)
	Parochial School Students						
Ability Grouping Experience: ($p < .001$)							
None	59	24	13	1	3	100	(1472)
Once	71	20	8	—	1	100	(721)
Twice	74	17	7	1	1	100	(352)
Three Times	76	17	4	—	3	100	(76)
	Private School Students						
Ability Grouping Experience: ($p < .001$)							
None	63	23	10	1	3	100	(366)
Once	75	16	6	2	1	100	(427)
Twice	79	14	6	—	1	100	(290)
Three Times	79	13	13	3	3	100	(105)

terms of the college entrance examinations, we find that the respondent who had had one or more test-taking experiences is more likely to have experienced one or more ability groupings. There are no major school differences in this respect.

We shall now briefly examine how ability grouping relates to social background and other characteristics. The ability grouping index is a continuous variable and permits an analysis of the data in terms of correlation coefficients (Table 10.5). Inspection reveals that while there are a few slight tendencies evident, in general, the relationships found are nonsignificant.

Social Background Characteristics

Father's education tends to relate positively to ability grouping in both the public and parochial schools, a rather expected finding. We know that ability grouping is related to intelligence, as measured by the reading test score. We also know that it relates positively to test-taking experience. Both of these variables, in turn, are positively related to social class, as measured by father's education.

It is interesting to note that being female decreases the probability of

TABLE 10.5 The relationships of student characteristics to ability grouping experience*

	Ability Grouping Experience
Public Schools (N = 1064)	
High Father's Education	.10
Female	−.02
12th Grade	−.05
White	−.15
Protestant	.04
Catholic	−.05
Jewish	.05
Reading Test Score	.13
Educational Aspiration	.20
Identity Confusion	−.05
Fatalism	−.10
Introspective Self-Concern	.06
Self-Confidence	.09
Self-Esteem	.12
Intellectual Elitism-Equalitarianism	.02
Parochial Schools (N = 527)	
High Father's Education	.12
Female	−.12
12th Grade	−.07
Reading Test Score	.16
Educational Aspiration	.17
Identity Confusion	−.02
Fatalism	−.06
Introspective Self-Concern	.08
Self-Confidence	.06
Self-Esteem	.16
Intellectual Elitism-Equalitarianism	.07
Private Schools (N = 240)	
High Father's Education	.04
Female	−.12
12th Grade	−.16
Reading Test Score	.19
Educational Aspiration	.22
Identity Confusion	−.00
Fatalism	−.09
Introspective Self-Concern	.05
Self-Confidence	.08
Self-Esteem	.11
Intellectual Elitism-Equalitarianism	.04

* Correlation values are based on a 20 per cent systematic sample of respondents in each school. Each N equals the average of the N's on which the *r's* for that group were computed. for the public school group, *r's* of ± .08 or more are significant at the .01 level. For the parochial school group, ± .11 or more is significant at the .01 level and for the private school group, ± .17 or more is significant at .01 level. (The respective .05 levels are ± .06, .085, and .13.)

being grouped in the parochial and private schools, but not so in the public school.

Being older, or in the twelfth grade, is related negatively to experience with ability grouping. Since we might have expected that the two years from tenth to twelfth grades would afford more opportunity for experience with ability grouping, this is a rather surprising finding. It may reflect a sharp upturn in the extent to which ability grouping was used in the schools in 1958–1960 (following Sputnik), a trend that could have meant more frequent grouping for the younger students during their late elementary and junior high school years.

Being white is inversely related to reported ability grouping experience. Because of the correlation between being white and high reading test scores, father's education, and other variables associated with ability grouping, it is probably impossible to disentangle the reasons for this result. However, we offer these considerations: first, it may be that Negroes more frequently are grouped into less advanced ability groups on the basis of reading test scores, and that this is what they report. (We were unable to do a special cross-tabulation looking at type of ability grouping reported by race, which might answer this question.) Second, it may be that very able Negroes are advanced in ability groups more frequently than whites, but this seems unlikely. Third, the reality may well be that tracking arises as a practice more often in racially mixed schools.

Catholics in public schools, more so than Protestants or Jews, have had less experience with ability grouping, probably as a reflection of the correlation of being Catholic with lower reading test scores and father's education.

Reading Test Scores and Educational Aspirations

The relationships of reading test scores and educational aspirations to ability grouping yield positive correlations ranging from .13 to .22.

Personality Characteristics

Among the personality characteristics there is a significant negative relationship, although very small, between fatalism and ability grouping experience, and positive relationships for self-confidence and self-esteem, in the public schools; this same pattern occurs for the other two school groups, although at varying levels of significance.

To summarize, a picture of the student with greater exposure to ability grouping shows him to have had one or more experiences with ability grouping; to be less likely, in the public schools, to have had more experience with standardized testing; to report that he has been placed in at least an average, if not an above average group; to come from a higher educa-

tional background; to more likely be a male in the tenth rather than twelfth grade; to be Negro, and not to be Catholic. He is understandably likely to score higher on the reading test and to have higher educational aspirations, and to be high on self-confidence and self-esteem, and nonfatalistic. We repeat that in most instances the correlations between ability grouping experience and these variables are quite small. In general, the relationships reported are very similar to the correlates of test-taking experience. (See Chapter 4.)

BELIEFS AND ATTITUDES ABOUT ABILITY GROUPING

This major section of Chapter 10 deals with opinions about whether students should be grouped in classes according to ability, and if so, what criteria should be used to establish such groupings.

In a first section we describe responses to three related questions: (1) "Do you think that third- and fourth-grade pupils (in elementary school) should be grouped into different classes according to their abilities?"; (2) "Do you think that seventh- to ninth-grade pupils (in junior high school) should be grouped according to their abilities?"; (3) "Do you think that high school students should be grouped according to their abilities?" The accompanying response categories for each item were: (1) "Only slow learners"; (2) "Only very good pupils and slow learners"; (3) "Only very good pupils"; (4) "Yes, all pupils"; (5) "No, pupils should not be grouped in this way"; (6) "I have no definite opinion."

For purposes of the present analysis, response categories were combined as follows: (1) All students should be grouped; (2) Only some (good students and slow learners) should be grouped; (3) No one should be grouped; (4) No opinion.

The first part of this section reports general distributions on these items. The second, third, and fourth parts describe the relationship between the third opinion item (above) on grouping and (1) selected social background variables, (2) the respondents' reading test scores and educational aspirations, and (3) their personality characteristics. In a fifth and final part, we discuss respondents' opinions about criteria for ability grouping, using the following item as our main source of information: "What basis do you feel the *school* should use the most for this purpose?" The purpose being referred to here is the ability grouping of students.

General Findings

Examination of the responses to each of the three items dealing with extent of ability grouping (Table 10.6) reveals that the proportion of secondary school students who feel that *all students* should be grouped according to their abilities increases as we move from the grade school

TABLE 10.6 Attitudes toward the extent of those who should be grouped

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Responses to Item 143: *"Do you think that third and fourth-grade pupils (in elementary school) should be grouped into different classes according to their abilities (homogeneous grouping)?"*			
Elementary School:			
All	27	24	33
Some	45	41	39
None	28	36	28
	100	101	100
	(4344)	(2245)	(1059)
No Opinion	17	14	10
	(908)	(366)	(122)
Responses to Item 144: *"Do you think that seventh to ninth-grade pupils (in junior high school) should be grouped according to their abilities?"*			
Junior High School:			
All	35	42	56
Some	39	35	34
None	25	23	10
	99	100	100
	(4521)	(2332)	(1101)
No Opinion	15	11	7
	(766)	(284)	(79)
Responses to Item 145: *"Do you think that high school students should be grouped according to their abilities?"*			
High School:			
All	36	54	67
Some	33	27	26
None	31	19	7
	100	100	100
	(4436)	(2354)	(1069)
No Opinion	16	10	7
	(833)	(255)	(77)

item to the junior high school item to the high school item. Of the public school respondents, only 27 per cent express the opinion that all elementary school students should be grouped, whereas 36 per cent feel that this is appropriate for students at the high school level. The difference becomes even larger when we look at the responses given by parochial and private school students. In the private school, one-third of the respondents state that all elementary school pupils should be grouped

(33 per cent), whereas 67 per cent say that all high school pupils should be grouped.

We next computed the relationships between attitudes toward grouping policy at these three educational levels. Analyses of these data reveal that responses to the items are highly correlated, despite the trend noted above. The contingency coefficients between the three items for the public school group were .75 for the elementary and junior high school items, .63 for the elementary and high school items, and .78 for the junior high and high school items. Similar coefficients were obtained for the parochial and private school groups. It was therefore decided to limit our discussion in this chapter to attitudes toward ability grouping of high school students (the third questionnaire item). This decision was made for the additional reason that our present concern is primarily with attitudes of secondary school students and the high school item is most concretely relevant to this group of respondents.

Table 10.6 shows substantial variations in response to this item between the three types of school students. In the public school population, we find about one-third of the students saying that all students should be grouped, another third saying only some students should be grouped, and, of course, the final third saying that no students should be grouped. A shift occurs in the parochial school student body toward more favorable attitudes toward grouping all students. And in the private school sector, there is even further change in which two-thirds say all students should be grouped and only 7 per cent say no students should be grouped. Thus, we see that the one-third of the student body against any kind of grouping in the public schools dwindles to a very small group in the private schools.

Social Background Characteristics

1. *Father's Education*

For purposes of this analysis, we have followed the usual procedure of collapsing responses to this item into four levels of education. Examination of the public school data in Table 10.7.1 indicates that respondents whose fathers have higher levels of education are more likely to state that all high school students should be grouped according to their abilities. The entire table is significant at the .001 level. The influence of father's education shows the same pattern in the parochial and private school groups (see Tables 10.7.2 and 10.7.3 deposited with the NAPS), although Table 10.7.3 is not statistically significant because of an attenuated distribution for the independent variable. On balance, these data provide strong support for the hypothesis that father's education is significantly related to student opinions about whether or not high school students should be grouped according to their abilities; the higher the father's educational level, the more favorable the offspring's opinions about grouping.

TABLE 10.7.1 Attitudes toward the extent of those who should be grouped (Item 145) by social background variables

	Public School Students				
	Extent of those who should be grouped:				
	All %	*Some* %	*None* %	*Total* % (f)	*No Opinion* % (f)
Father's Education: ($p < .001$)					
High School or less	32	33	34	99 (2128)	17 (446)
Some College	35	33	31	99 (1264)	15 (218)
College B.A.	45	32	23	100 (495)	13 (74)
Advanced Degree	45	34	21	100 (478)	12 (68)
Sex: (n.s.)					
Male	35	35	30	100 (2017)	16 (391)
Female	37	33	31	101 (2395)	16 (438)
Grade Level: (n.s.)					
10th Grade	38	32	31	101 (2500)	17 (505)
12th Grade	34	35	31	100 (1912)	14 (324)
Race: (n.s.)					
White	36	34	31	101 (4042)	16 (742)
Negro	43	32	26	101 (273)	18 (58)
Religion: ($p < .001$)					
Protestant	36	35	29	100 (2283)	14 (385)
Catholic	39	30	31	100 (980)	14 (165)
Jewish	47	38	14	99 (176)	12 (23)

2. *Sex and Grade Level*

The results on sex differences are generally weak, although in the parochial school population (see Table 10.7.2 deposited with the NAPS) there is a significant tendency for males, in contrast to females, to report that all high school students should be grouped (60 vs. 49 per cent). In Appendix B we report data that male students from parochial schools have higher educational aspirations than their female counterparts; a finding that is not duplicated in the public school sample. Since, as we demonstrate below, aspirations are positively related to opinions about ability grouping, it follows that parochial school males should hold more favorable opinions than parochial school females. The same line of reasoning should apply to the private school respondents since aspirations also correlate with sex in that group. However, the expected greater favorability of males as compared to females toward grouping all students (71 vs. 63 per cent) appears here only as a nonsignificant trend.

3. *Race and Religion*

A student's race plays virtually no role in his attitudes toward the extent of ability grouping. The effect of religious affiliation, however, is another matter. Examination of the public school results (Table 10.7.1)

indicates a relationship between religion and opinions about ability grouping. More Jews than Catholics or Protestants believe that all high school students should be grouped according to their abilities (47 vs. 39 and 36 per cent respectively). This difference vanishes in the private schools[1] where all three religious groups show the same high percentage favoring ability grouping (68, 69, and 62 per cent) for all students. Since private school students generally come from upper-class backgrounds, and since social class is highly related to the ability grouping item, we thought that social class level might be a major factor moderating these religious differences in attitudes toward ability grouping. Accordingly, we reanalyzed the public school data, controlling for father's education (see Table 10.8 deposited with the NAPS). The results showed that social class is, indeed, an important variable in the relationship. We found that, at the highest level of social class, there is a larger proportion of Jewish respondents (57 per cent) as compared to Protestants (42 per cent) and Catholics (49 per cent) who feel that all high school students should be grouped. This difference does not, however, have a parallel at lower social class levels where the percentages for the three religious groups were approximately the same.

We may conclude that religious affiliation has some relationship to positive attitudes toward ability grouping, although social class (that is, father's education) unquestionably is more closely related. Since none of the other social background variables correlated with the attitude item in question, the general conclusion we can reach is that favorable attitudes toward grouping are characteristic of Jewish students, and of those students who come from families where the father has had advanced education.

Reading Test Scores, Educational Aspirations, and Experience with Ability Grouping

1. *Reading Test Scores*

An examination of Table 10.9.1, also Tables 10.9.2–10.9.3 deposited with the NAPS, reveals that positive attitudes toward ability grouping are related to the respondent's reading ability. In all three schools, students who have been categorized in the upper three deciles of the distribution of reading test scores show more favorable attitudes than do respondents classified in the lower third of the distribution. In other words, respondents with high reading test scores favor grouping all students, whereas those with low reading test scores feel that no students should be grouped according to their ability. These results are significant for the public and parochial school students, but the private school table fails to

[1] The parochial school results are obviously irrelevant here since virtually all students in this group are Catholics.

TABLE 10.9.1 Attitudes toward the extent of those who should be grouped (Item 145) by reading test score, educational aspiration, and experience with testing and ability grouping

	Public School Students				
	Extent of those who should be grouped:				
	All %	*Some* %	*None* %	*Total* % (f)	*No Opinion* % (f)
Reading Test Score: ($p < .001$)					
Low	29	32	39	100 (1264)	18 (271)
Medium	33	34	32	99 (1419)	16 (280)
High	47	33	20	100 (1413)	13 (206)
Educational Aspiration: ($p < .001$)					
High School or less	27	32	41	100 (976)	21 (263)
Some College	29	36	35	100 (1507)	16 (280)
College B.A.	41	33	25	99 (1252)	13 (187)
Advanced Degree	54	29	16	99 (617)	12 (82)
Ability Grouping Experience: ($p < .001$)					
Never	27	37	36	100 (2525)	19 (609)
Once	40	33	28	101 (1145)	12 (153)
Twice	55	26	20	101 (599)	9 (59)
Three Times	79	17	5	101 (141)	5 (8)

reach statistical significance, probably because of the absence of any respondents with low reading test scores.

In the previous section we found that father's education was strongly related to opinions about grouping. We therefore examined the relationship between the ability grouping item and reading test scores with a control for father's education (see Table 10.10 deposited with the NAPS). The results for the public school sample show that at each educational level reading test scores are directly related to positive attitudes toward ability grouping. Among the students whose fathers did not complete a high school education, 29 per cent in the low reading score category believe that all students should be grouped, whereas 43 per cent of those in the high reading score category favor ability grouping for all students. Of students whose fathers have graduated from college, 35 per cent in the low reading score category believe that schools should group all students, whereas 53 per cent of those in the high category hold such an opinion. Father's education clearly makes a difference in strengthening the relationship between reading test scores and the ability grouping item. The greatest percentage showing favorable attitudes toward grouping comes from the combination of advanced education of the father and high reading test score of the respondent (53 per cent);

the smallest percentage from the combination of high school education or less and low reading test score (29 per cent).

2. *Educational Aspirations*

Table 10.9.1, also Tables 10.9.2–10.9.3 deposited with the NAPS, report data on the relationship between aspiration and attitudes toward ability grouping. In all three schools, attitudes favoring grouping for all students are held by more students with higher educational aspirations, whereas attitudes opposing ability grouping for any students are characteristic of those with lower aspirations.

In view of the relationship between social class and aspiration, it seemed appropriate to examine the correlation between the ability grouping item and educational aspirations, with a control for the educational level of the respondent's father (see Tables 10.11.1–10.11.3 deposited with the NAPS). The results of this analysis show that at each educational level high aspirations are positively related to the opinion that all students should be grouped, with the degree of relationship between the two variables generally increasing as social class level increases. These results appeared not only in public schools, but in the parochial and private schools as well. There were some inversions in the linear relationship in the private school group, but the overall trend was the same as that obtained with the public school students. In the latter group, the highest percentage of respondents favoring homogeneous ability grouping occurred in the category formed by advanced education of the father and high aspirations of the respondent (61 per cent); the smallest percentage in the category formed by father with a high school education or less and respondents with low aspirations (26 per cent).

The results for educational aspirations duplicate, in the main, the data reported for the reading test scores. This parallel is to be expected in view of the positive correlation between reading test scores and educational aspirations. We may conclude from both sets of results that upper-class respondents with higher intelligence and higher aspirations are those who hold more favorable opinions about homogeneous ability grouping in high schools. Conversely, respondents whose intelligence is low, whose aspirations are not particularly high, and whose fathers have had little education show the greater opposition to the practice of homogeneous grouping. The results take on added significance when we consider that these relationships occurred in all three types of schools.

3. *Ability Grouping Experience*

At this point we turn to an examination of the relationship between a respondent's experience with ability grouping and his opinions about this practice. Table 10.9.1, also Tables 10.9.2–10.9.3 deposited with the NAPS, report the relationship between the ability grouping experience

index and attitudes toward the extent of ability grouping for all three types of schools. The results are extremely strong and consistent, with a greater percentage of respondents who favor grouping also reporting three experiences with grouping. In the public school, for example, 79 per cent of those who had been grouped three times assert that schools should group all students, while only 27 per cent of the respondents with no ability grouping experience were of this opinion. This strong relationship also obtains in both the parochial and private schools.

These results are quite consistent with our earlier findings that: (1) the index of grouping experience tends to be positively related to social class and reading test score (Chapter 4); and (2) these dimensions are positively related to favorable attitudes toward ability grouping. Bright, upper-class respondents tend to report more grouping experiences and also hold more favorable attitudes toward the practice.

One would certainly expect that these favorably inclined students have had their grouping experience in high rather than low ability classes, so that grouping has not for them been an experience of invidious comparison. On the other hand, high ability students who might have enjoyed a comfortable status among less talented classmates might find their school situation less rewarding when forced to compete with equally bright and motivated peers in the classroom. In Table 10.12 we tested the interaction effects between ability grouping experience and reading test score in relation to attitudes toward ability grouping. We see very clearly an important fact: the percentage of respondents favoring grouping for all students increases independently for both frequency of grouping experience and level of reading test score. Even the student with low reading test scores who has had one ability grouping experience is more favorable toward the practice than is his counterpart with no experience, and low scoring students with two or three experiences are even more favorably inclined. Thus, we conclude that ability grouping experience is well regarded even among low ability public school students in the United States.

Personality Characteristics

Fatalism was significantly related to the item on ability grouping in public and parochial, but not private schools—the latter from a restriction of range, we believe (see Table 10.13.1; also Tables 10.13.2–10.13.3 deposited with the NAPS). In all three schools, this factor is inversely related to the belief that all students should be grouped according to their ability, and directly related to the view that students should not be grouped. In other words, respondents who score low on this factor show favorable attitudes toward ability grouping; those scoring high show unfavorable attitudes. Fatalism is negatively correlated with father's education and reading test scores, and since both of the latter correlate

TABLE 10.12 Attitudes toward grouping of high school students (Item 145) by reading test score, controlling for ability grouping experience

	Public School Students						
	Attitudes toward grouping of high school students:						
	All Students %	*Only Slow* %	*Only Good & Slow* %	*Only Good* %	*None* %	*Total* % (f)	*No Opinion* %
No Ability Grouping Experience:							
Low Reading Test Score	17	13	8	6	36	101 (1043)	21
Average Reading Test Score	21	13	11	7	29	101 (1043)	20
High Reading Test Score	31	8	18	6	20	100 (783)	17
One Ability Grouping Experience:							
Low Reading Test Score	30	13	7	7	30	100 (320)	13
Average Reading Test Score	33	11	11	8	25	100 (424)	12
High Reading Test Score	43	7	14	8	19	101 (480)	10
Two or Three Ability Grouping Experiences:							
Low Reading Test Score	56	10	5	4	18	101 (171)	8
Average Reading Test Score	49	7	8	6	21	100 (232)	9
High Reading Test Score	60	4	10	7	10	99 (356)	8

TABLE 10.13.1 Attitudes toward the extent of those who should be grouped (Item 145) by personality variables

	Public School Students				
	Extent of those who should be grouped:				
	All %	*Some* %	*None* %	*Total* % (*f*)	*No Opinion* % (*f*)
Identity Confusion Factor Score: (n.s.)					
Low	37	33	30	100 (2409)	16 (473)
High	35	34	32	101 (2002)	15 (355)
Fatalism Factor Score: ($p < .001$)					
Low	40	34	26	100 (2185)	14 (358)
High	32	33	35	100 (2227)	17 (470)
Introspective Self-Concern Factor Score: ($p < .001$)					
Low	33	34	33	100 (2243)	17 (472)
High	39	32	29	100 (2168)	14 (355)
Self-Confidence Factor Score: (n.s.)					
Low	35	34	31	100 (1980)	17 (409)
High	36	33	31	100 (2431)	15 (419)
Self-Esteem Index: ($p < .001$)					
Low	34	32	34	100 (2408)	14 (195)
High	39	34	27	100 (1997)	13 (291)
Index of Intellectual Elitism-Equalitarianism: ($p < .001$)					
Elite	39	36	25	100 (1229)	14 (195)
Intermediate	35	34	31	100 (1841)	16 (362)
Equalitarian	32	30	37	99 (1084)	16 (202)

with positive attitudes toward ability grouping, it may be that the inverse relationship of fatalism to these positive attitudes reflects these facts.

Another personality factor, introspective self-concern, is defined by the individual's concentration on the kind of person he will be in the future. There is also an indication of achievement motivation and self-determination. There were no school differences in the distribution of this factor: public, parochial, and private schools alike showing approximately equal numbers of introspective self-concern. (See Appendix B.) In the public school sample, we find small but significant differences, with high scores positively related to favorable attitudes toward ability grouping. Among the parochial school respondents, in contrast, we find no relationship between the factor score and opinions about grouping, while for the private school respondents, high scoring students tended to hold negative attitudes toward ability grouping. We cannot, therefore, draw

any general conclusion about the relationship of introspective self-concern to these attitudes.

We turn now to two other personality variables that show some relationship to attitudes toward the extent of ability grouping. The results on self-esteem and attitudes toward ability grouping suggest that in all three types of schools respondents scoring high on the index were more favorable than those receiving low index scores. These data dovetail with the finding (see Appendix B) that upper-class, intelligent respondents tend to exhibit higher self-esteem. It would follow, then, that such respondents would favor ability grouping, since the class and intelligence variables are also correlated with the ability grouping item.

As for intellectual elitism-equalitarianism, the elitist's point of view affirms the existence of individual differences in intelligence and insists that the best opportunities for advancement should be allocated to those highest in intelligence. Significantly more elitist respondents in all three types of schools hold favorable attitudes toward ability grouping as compared with those categorized in either the intermediate scale category or in the equalitarian group. In the public school, for example, 39 per cent of the elitists held the view that all students should be grouped, whereas only 32 per cent of those holding an equalitarian view and 35 per cent holding an intermediate position were in favor of grouping. Still, although these percentages are statistically significant, it is surprising that so low a percentage of elitists are in favor of ability grouping. Given the definition of elitism, we would have expected considerably more of these respondents to favor grouping practices.

The picture that emerges from the foregoing results may be summarized as follows: Variability in opinions about ability grouping is related in the main to: (1) father's education, (2) religion (Jewish), (3) reading test score, (4) educational aspirations, (5) experience with ability grouping, (6) self-esteem, and (7) fatalism. It would appear that a student who is high on each of these dimensions (and low on fatalism) holds more favorable attitudes toward ability grouping and more often recommends its use for all secondary school students.

Opinions About Criteria to Be Used for Ability Grouping

In this final, brief section we take up a related question, namely, what criteria students think should be used to group according to ability. The item used to collect data was, "Which basis do you feel the schools should use the most for . . . the ability grouping of students?" The original question included 12 response categories as follows: students' intelligence; students' creativity; students' achievement test scores; past marks; how interested the student is in his work; how hard the student tries in his work; teachers' recommendations; father's occupation; students' plans for the future; none of these; my school does not group students in any

TABLE 10.14 Attitudes toward the basis of ability grouping (Item 113): *"Which basis given above do you feel the school should use the most for this purpose?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Criteria of Grouping:			
Intelligence and Achievement Test Scores	41	48	47
School Marks, Interest, and Hard Work	42	49	40
Future Plans	17	3	13
	100	100	100
	(3759)	(867)	(2157)
My school does not group	8	4	3
	(416)	(96)	(35)
Other	2	2	6
	(249)	(107)	(140)
No Opinion	9	5	6
	(862)	(258)	(141)

special classes; I do not know. (For the frequencies of responses in each of these categories, see Brim, Goslin, Glass, and Goldberg, 1965.) For the purposes of the present analysis, responses were grouped into the following categories: (1) intelligence and achievement test scores; (2) school marks, interest, and hard work; (3) students' plans for the future; (4) other, including teachers' recommendations, students' creativity, and father's occupation; (5) my school does not group any students; and (6) no opinion. Table 10.14 presents the distribution of responses in each of these categories for the three types of schools. It can be seen that the majority of respondents believe that "intelligence and achievement test scores," or "school marks, interest, and hard work" are the two sets of criteria that should be given the most emphasis in selecting students for special ability groups. Note the fact that there are no interschool differences.

Since we find that the two major criteria of grouping are essentially tied in popularity of response, we thought that we could get some preferential ordering of these two by cross-tabulating according to the students' beliefs about the extent to which students should be grouped. Accordingly, we examined within each type of school population the relationship between beliefs that all, some, or no students should be grouped, and preferences for the basis of ability grouping. Tables 10.15.1–10.15.3 deposited with the NAPS present the cross-tabulations.

We see that in all three types of schools the majority of students who favor grouping everyone also prefer the use of intelligence and achievement test scores as a criterion, with school marks, interest, and hard

work coming second. Conversely, school marks and so forth are associated with stating that only some or no students should be grouped.[2]

1. *Social Background Variables*

In the analyses that follow, we present data only for those respondents who indicated they believe all or at least some students should be grouped according to ability. The data in Tables 10.16.1–10.16.3 deposited with the NAPS show that the educational background from which respondents come seems to make very little difference in their choice of criteria, nor does their sex, age, race, or religion. In each instance about half select intelligence and achievement test scores, and slightly less emphasize school marks, interest, and hard work. This is in accord with the fact that we found no interschool differences in choice of criteria.

2. *Reading Test Scores and Educational Aspirations*

Analyses involving the respondents' reading test scores, educational aspirations, and experiences with ability grouping yielded relationships with preferred criteria for ability grouping. Tables 10.17.1–10.17.3 deposited with the NAPS show the relevant cross-tabulations. The data reveal that more respondents with high as compared with low reading test scores prefer using tests as criteria for ability grouping than using school marks, interest, and hard work. This relationship appears in all three schools; although it is significant only in the parochial schools ($p<.001$), it approaches significance in the public school ($p<.05$). Not surprisingly, almost identical results were obtained for educational aspirations. More respondents with high rather than low aspirations favor the use of intelligence and achievement test scores as the basis for ability grouping. In the public school sample, for example, 51 per cent who hope to obtain an advanced degree choose intelligence and achievement test scores, whereas only 38 per cent of those who aspire to a high school education choose this category.

3. *Ability Grouping Experience*

We also examined the relationship between the index of ability grouping experience and preferred criteria for grouping. Tables 10.17.1–10.17.3 deposited with the NAPS report the relevant analyses for each of the three types of schools. Each relationship was significant at the .02 level. The data suggest that the greater the reported experience with ability grouping, the more likely the choice of intelligence and achievement test scores as criteria for creating ability groups. In the public

[2] We note that in each school population there were a number of respondents who, even though they said no students should be grouped, still answer the question on the criterion to be used for such groupings. The frequencies are 827 in the public schools, 320 in the parochial schools, and 50 in the private schools.

school group, for example, 55 per cent of those with three experiences chose test scores, as compared to only 42 per cent of those who report never having any ability grouping experience. Since we know that the extent of grouping experience is positively correlated with reading test scores, we expected respondents with more experience to favor intelligence and achievement test scores as criteria for ability grouping. The brighter student is likely to have done better on standardized tests of ability in the past and would therefore favor their use in the creation of special classes based on ability.

4. *Personality Characteristics*

None of the personality factors showed more than a negligible relationship to any of the criteria for ability grouping (see Tables 10.18.1–10.18.3 deposited with the NAPS).

To summarize beliefs about the criteria that should be used as the basis for forming ability groupings, the findings indicate that students are about equally split between using intelligence and achievement tests scores on the one hand, and using school grades, interest, and hard work on the other hand. Of the students who had previously indicated that they believed that all or some of the pupils in secondary school should be grouped, those who then selected "intelligence and achievement test scores" as the preferred criteria were most likely to have the following characteristics: high reading test score; high educational aspirations; more experience with ability grouping. Father's education, race, sex, grade in school, and religion were not related with any preference for a criterion for ability grouping.

11

Perceived Consequences of Intelligence Testing

☐ THE THEME for analysis in this short chapter is the consequences the students see of their experiences with standardized ability tests. How do respondents think test scores have been used in the process of making decisions affecting their futures?

We understand that their reports are probably not factual descriptions, for this is an area of opinion in which there is much room for the expression of individual feelings of various kinds. Indeed, some research (Hastings *et al.*, 1960) shows that even those persons who make decisions about children—guidance counselors, teachers, and others are frequently unable to evaluate the amount of reliance they place on test scores in their decision processes. So the task set here is not to describe in fact how tests are used to make decisions about our student respondents, but rather to capture their beliefs and attitudes about this process.

POSITIVE AND NEGATIVE LIFE EXPERIENCES: GENERAL FINDINGS

A set of questionnaire items asked whether certain events were seen by the respondent to have happened "partly as a result of taking intelligence tests." These events can be classified as positive or negative in value; that is, things that ordinarily would be viewed as more or less advantageous for the respondents as opposed to disadvantageous. The positive items were as follows:

Being placed in a special advanced grade in grade school or high school
Being skipped a grade
Being admitted to college
Deciding to go to college
Deciding to apply to a better college
Winning a scholarship or a fellowship

The negative instances were the obverse of these, for example, being held back a grade. In addition, there was a single "neutral" item; that is, whether the consequence of taking an intelligence test was to decide on a specific job.

Of these items, the four in which consequences most frequently were reported dealt with being placed in a special advanced group, being placed in a special slow group, deciding to go to college, and deciding on a future job. The data show, in general, that respondents report positive consequences to have happened as a result of taking intelligence tests rather than negative events.[1] How is one to account for the lower frequency of reported negative effects and the emphasis on the positive? We see two ways in which this could happen: first, it may simply be due to a process of denial or selective forgetting on the part of respondents who have had unpleasant experiences. Second though, and our preferred explanation, is the likelihood that tests, in fact, lead to positive consequences that are usually concrete, specific events, contrasting with what was the case before, and that can be remembered. The figure-ground distinction is clear. In contrast, a negative test consequence when it takes place frequently does not change the existing situation and the person involved is never told. We think of this as a possible generalization such as "losers are never told."

For example, being placed into a special group in school is a positive event that stands out from the usual state of affairs. It would be associated with some immediate cause like taking a test. Not being placed into a special group means remaining in a status quo; there never really is an "event" taking place. Thus, there is no occasion for associating a test that one might have taken with a specific event. Similarly, being admitted to college is an event that can be associated with very specific prerequisites, some of which are passing tests. If not admitted, the student may have been told that there was a combination of things that determined his rejection. As a matter of fact, it is common policy to stress the fact that any single test never constitutes grounds for rejection. Or in the case of the job situation, a positive consequence means being hired or being promoted, an event that gets celebrated and stands out from the

[1] The events inquired into are of a kind that happen only to a relatively small proportion of the respondents. Thus, only a very small proportion of respondents will, in fact, have skipped a grade or won a scholarship or fellowship. Theoretically, all others should have used the "Does not apply" category for their responses. This, however, did not happen. Clearly, a large proportion of the respondents who have used this category gave a "No" or "Don't Know" response instead. As a consequence, we decided to report the "Yes" and "Maybe" responses as a proportion of the total sample. However, the reader should keep in mind the following: While this reported proportion is, indeed, the percentage of the population who see tests as consequential, it is an overly conservative estimate. Were we to base the percentage of respondents who see tests as consequential only on those respondents for whom the particular question is really appropriate (a percentage we unfortunately do not know), the proportion would in most instances be considerably higher.

usual drabness of everyday life. Negative consequences in this case may simply imply never getting that letter of acceptance or promotion. Nothing really ever happens. Thus, the generally lower percentage of reported negative consequences of test-taking may arise from the likelihood that the consequences are never perceived, are never known to the person; he did not know that he was being reviewed for possible promotion or advancement or employment or any special consideration.

Now, for those who report one or more positive consequences of taking intelligence tests, what can we discover about their characteristics and how do the variables of social background and personality characteristics affect their reports? We defer for the moment our comments on interschool differences to the section on father's education below, where we discuss the two items together.

SOCIAL BACKGROUND CHARACTERISTICS

Our analyses show that the reporting of one or more positive effects of taking intelligence tests is positively correlated with the level of education of the father. In the public and parochial school populations, the proportion of students perceiving any positive effect goes up, and that proportion receiving any negative effect goes down, as we move up through the successive levels of father's education (see Table 11.1.1; also Tables 11.1.2–11.1.3 deposited with the NAPS). A separate analysis of this problem, holding race constant, shows that the same relationship exists for both Negro and white students (see Table 11.2 deposited with the NAPS).

On the interschool comparisons this same relationship holds. We find that the reporting of positive consequences is more frequent among the parochial school students than the public school students when compared at all levels of father's education. The private school students also exceed the public school students in the frequency of reported positive effects.

But the private school students do differ from the other respondents in certain ways that need note here. First, the relationship between father's education and reported positive consequences does not occur in the private school population; indeed, there seems to be an increase in reported negative consequences as father's education rises. Second, the private school students do not report higher frequencies of positive effects than do the parochial school students, as we might have expected. An examination of the four items mentioned above that had the most frequent responses, shows that the private school students report being placed in special advanced groups more frequently than the other students. They less frequently report that consequences of testing influence their decisions to go to college or their decisions about a future job. It may be that among these private school students with their substantially

TABLE 11.1.1 Perceived consequences of intelligence testing by social background characteristics

	Public School Students		
	Percentage reporting any:		
	Positive Effect %	*Negative Effect* %	
Father's Education:			
Less than 12th Grade	29	20	(2599)
High School Graduate	34	17	(1496)
Some College	40	13	(575)
College Graduate or more	43	12	(550)
Sex:			
Male	34	19	(2434)
Female	32	16	(2859)
Grade:			
10th	34	16	(3037)
12th	32	20	(2256)
Religion:			
Protestant	34	15	(2689)
Catholic	32	21	(1150)
Jewish	51	14	(199)

higher levels of measured ability and of social background most of them already have crossed the thresholds of decision in society where test results play an important role; for example, entrance into college or obtaining a satisfactory job are hardly problematic for most of this group. The nature of the college and the level of the job depends more on personality or personal contacts or hard work; the gates that test scores open or close have already been confronted and likely passed through. We see this theme of less reliance on tests at higher levels of achievement in other chapters; for example, we find less reliance on tests as a source of information about one's intelligence among the private school students.

As for the other social background variables, tests appear to be more salient for males in all schools, with parochial and private school males definitely more likely than females to report positive effects. As for grade in school, in the public school population the tenth-graders see slightly more positive and fewer negative effects than do the twelfth-graders. In the parochial and private schools, the twelfth-graders see both more positive and more negative effects than the tenth-graders.

Where religion is concerned, Jews are more likely to see positive effects and Catholics, in both the public and private schools, are more likely to see negative effects and less likely to see positive. Probably this religious difference reflects differences in father's education and in reading test scores, both of which are independently related to reported positive effects.

TABLE 11.3.1 Perceived consequences of intelligence testing by reading test score, educational aspiration, test-taking experience, and ability grouping experience

	Public School Students		
	Percentage Reporting any:		
	Positive Effect %	*Negative Effect* %	
Reading Test Score:			
Low	26	24	(1548)
Average	30	15	(1712)
High	42	8	(1628)
Educational Aspiration:			
High School or less	21	24	(1251)
Some College*	28	20	(1799)
College B.A.	41	13	(1452)
Advanced Degree	52	11	(704)
Test-Taking Experience:			
Several	28	15	(2878)
Once	30	19	(1231)
Not Sure	24	22	(718)
None	18	16	(171)
Don't Know	26	26	(267)
Ability Grouping Experience:			
Never	25	17	(3172)
Once	40	19	(1307)
Twice	52	18	(663)
Three Times	64	17	(149)

* Includes vocational, business, junior college, some college.

READING TEST SCORES AND EDUCATIONAL ASPIRATIONS

Table 11.3.1, also Tables 11.3.2–11.3.3 deposited with the NAPS, report the data relating these variables to perceived positive consequences. As one moves from low to high reading test scores, higher proportions of students report positive effects and lower proportions state negative effects. Educational aspiration presents the same relational picture as just described for reading test scores. Because of the close association between these two variables, a separate controlled analysis was made and is presented in Tables 11.4.1 and 11.4.2 deposited with the NAPS. The results clearly show a strong relationship between increasing levels of aspiration and reported positive effects of testing at all three levels of reading test scores (grouped by top three, middle three, and lowest third deciles, omitting the lowest decile). This is true for both the public and parochial school students, the two groups on which the analysis was made.

While we would expect those scoring high on the reading test to score high on other measures of intelligence, and thus be likely to report

positive consequences from test-taking, it is not immediately clear why, when controlling for test performance, those with high aspirations also see substantially more positive effects from testing. Perhaps higher aspirations for some were reinforced (or even created) by improvements in test scores over time by students with low or average scores. (Even a low score could have improved from very low.)

Table 11.3.1 reports also on test-taking experience and ability grouping experience. For the latter, in all three schools the students with more experience in ability grouping report more positive effects, a fact we certainly would have anticipated. Experience with tests, on the other hand, shows a positive relationship to positive consequences in the parochial and private schools, but not in the larger public school population. One would expect the relationship to be positive because of the correlation of test experience with variables already shown to be associated with these positive consequences, although the relationship is not a particularly pronounced one in the public school group.

PERSONALITY CHARACTERISTICS

In all three types of school populations, the personality profile of the student reporting more positive effects is as follows: he is high on self-esteem, high on self-confidence, high on introspective self-concern; he is low on fatalism and is more likely to fall in the equalitarian segment of our measured elitist attitudes (see Tables 11.5.1–11.5.3 deposited with the NAPS). These characteristics are correlated with both the social background characteristics and other measures we have presented as tied to reporting positive consequences. They thus serve to round out and confirm the characteristics of the students described earlier, even though we do not in this instance make a cross-tabulation appraisal of their possible independent contribution.

To sum up, the secondary school students who report positive consequences of taking standardized intelligence tests are more likely to come from a better educational background, to be male, to be Jewish, to score high on reading tests and to have high aspirations, to have had more experience both with tests and ability grouping, and to have the personality profile delineated just above. Thus, we find that those American students reporting favorable outcomes of their experiences with intelligence testing are those who are more likely to have been helped in life by the results of the tests; they are more likely to have scored well on tests and more likely to have had the test results used and are more likely to be oriented toward careers and life experiences that good test scores help make possible for them. The one exception was the less frequently reported positive experiences in some areas by private school students, and we noted that this was probably because high test scores were no longer influential on the life chances of this special group.

We saw that the students on the whole reported positive rather than negative consequences and we stated earlier that this is the likely consequence of the fact that positive advantages from test results open up more rewarding areas of life and become memorable events, while negative test consequences are not often perceived by the student or, indeed, he may never be told that his intelligence test results have excluded him from opportunities. Favorable perceptions of the results of being tested, then, are as we would expect; those most likely to gain from the experience report positive consequences in life.

12

Attitudes Toward the Fairness of Using Test Results

☐ WE ASKED our student respondents for their attitudes toward using tests as the basis for decisions made about their education and their careers. The question: "Given tests as they are now, do you think it is fair (just) to use intelligence tests to help make the following decisions?" was followed by nine situations referring to education and occupations, and also referring to the selection of leaders in government and in large corporations.

GENERAL FINDINGS: PREDOMINANTLY NEGATIVE SITUATION-SPECIFIC ATTITUDES

We find that on the average students have unfavorable attitudes toward the use of tests. Some 53 per cent of the public school students are against using tests in job hiring; 63 per cent against their use in deciding on promotion; and 54 per cent think it unfair to use tests to select students for college.[1] Almost half are even opposed to using intelligence tests to help in establishing special classes in schools. (Table 12.1 presents these results.) We see, in fact, that only in one instance, that of putting children in special classes in school do as many as 42 per cent of the population agree that it is fair to use tests.

There is, then, a substantial anti-testing sentiment in the population.

[1] A study (Tesser and Leidy, 1968) of a national sample of high school students reports that "73% felt that it is very fair or moderately fair to base college entrance requirements on standardized test scores such as the college board examinations."

TABLE 12.1 Percentage distribution of responses to the question: *"Given tests as they are now, do you think it is fair (that is, just) to use intelligence tests to* help *make the following decisions?"*

		Secondary School Students								
		*Public (N = 5273)**			*Parochial (N = 2621)**			*Private (N = 1195)**		
Items	*Decisions*	*Yes*	*No*	*No Opinion*	*Yes*	*No*	*No Opinion*	*Yes*	*No*	*No Opinion*
221 . . .	decide who can go to certain colleges	32	54	14	40	52	8	41	52	7
222 . . .	put children into special classes in school	42	44	14	51	40	9	58	35	7
223 . . .	find out which children in the family should be given the most education	12	75	13	12	79	9	10	82	8
224 . . .	decide who should be hired for a job	33	53	14	33	58	9	30	61	9
225 . . .	decide who should be promoted	24	63	13	21	71	8	15	77	8
226 . . .	decide who should be allowed to vote	8	82	10	10	83	7	16	79	5
227 . . .	decide whom one should marry	5	86	9	4	90	6	6	89	5
228 . . .	select leaders in the government	39	45	16	39	50	11	34	57	9
229 . . .	select leaders for large corporations	36	46	19	38	50	12	30	58	12

* The total number of cases varies slightly for each item because of a number of no responses.

However, analysis of the correlations between attitudes toward using tests in the different situations presented shows that there is not one group of persons in this society that is antagonistic to tests generally, but rather that different persons favor or do not favor tests in different situations. We intercorrelated the item responses for a 20 per cent sample of the three school populations (Table 12.2) and find that with one exception the size of the correlation coefficient was much too small to permit us to predict a given student's attitude from one test use context to another. The only instance in which there was a substantial correlation involved the use of tests in the selection of leaders for government, and of leaders for large corporations. The correlations were .75, .81, and .78, respectively. In these two instances, we may assume with some degree of confidence that the student who agrees to use of tests in the one instance will also favor test usage in the other.

One cannot draw a profile of the person generally negative to the use of intelligence tests, but only say that some people dislike them in some situations, some in others. Thus, it would seem that the respondents who have developed negative attitudes toward intelligence tests and their use, for the reasons outlined in the Introduction and demonstrated throughout this volume, have had their attitudes tied to specific test contexts as a focus of resistance or resentment, what ever the original causes. The persons who feel that the result of being tested has given negative or unsatisfactory experiences, or who have not had any feedback or information which has helped them, or who believe that tests are inaccurate, or who believe that they are unethical or immoral, do not generalize their negative attitudes from one situation to the next but evidently focus on some of these situations rather than others. There seems to be no single source of grievance about test usage, nor is there any identifiable group of people who are antagonistic to test use in all situations. If there is opposition to test usage, it would seem to be diverse and unorganized. The negative attitudes do not coalesce around a given issue at a specific time, but rather spread over various situations and involves different persons.

MOST FAVORED AND LEAST FAVORED SITUATIONS

Examination of Table 12.1 shows that the proportion of respondents who either favor or disfavor the use of tests varies considerably from one situation to another. The context for which we find the greatest amount of approval of test use and the least opposition is in elementary school, namely, for the decision on putting children into special classes. Here 42 per cent of the public school students are in favor of using tests for this purpose, and 44 per cent are opposed. A quite striking difference occurs for the question on "which children in the family should be given the most education." Here only 12 per cent of the public school students

TABLE 12.2 Intercorrelations of 9 items referring to the fairness of the use of intelligence tests for certain decisions

Items	Decisions	221	222	223	224	225	226	227	228	229
		*Public Schools (N = 1045)**								
221	go to college	—	24**	15	26	23	11	06	16	21
222	special classes		—	11	11	09	01	05	16	20
223	most education			—	11	16	13	20	14	15
224	hired for job				—	41	12	13	29	37
225	be promoted					—	16	18	25	32
226	allowed to vote						—	29	18	16
227	marry							—	15	16
228	leaders in the government								—	75
229	leaders for corporations									—
		*Parochial Schools (N = 523)**								
221	go to college	—	24	25	33	22	03	14	11	18
222	special classes		—	16	14	13	04	08	11	14
223	most education			—	09	15	14	20	12	21
224	hired for job				—	36	18	13	24	32
225	be promoted					—	13	09	29	38
226	allowed to vote						—	13	14	16
227	marry							—	12	15
228	leaders in the government								—	81
229	leaders for corporations									—
		*Private Schools (N = 237)**								
221	go to college	—	28	18	36	22	14	10	35	28
222	special classes		—	18	23	25	08	06	17	17
223	most education			—	26	21	19	18	19	30
224	hired for job				—	33	13	09	34	42
225	be promoted					—	21	21	35	43
226	allowed to vote						—	29	21	19
227	marry							—	21	20
228	leaders in the government								—	78
229	leaders for corporations									—

* The total number of cases used varies slightly for each item because of a number of no responses.
** Decimal points omitted.

are in favor of using tests and 75 per cent are opposed. The other five contexts also differ substantially.

It seems to us that the data follow a distinction between what has been called universalistic versus particularistic ways of interacting with people. In some situations tests are viewed as legitimate because universal, impersonal criteria are customarily used by society in these situations, whereas in other situations tests are resisted in their use because they are settings in which the particular person himself matters very much. In other words, the use of intelligence tests to classify people and then to make judgments about, or assign opportunities to people, on the basis of test results is strictly impersonal and strongly universalistic. And the situations we presented to our student respondents to elicit attitudes about the fairness of using tests vary in the degree to which the norms of American society define them as universalistic or particularistic. We would expect that opposition to the use of tests would be greatest in those situations commonly viewed as particularistic, and, indeed, the two situations in which the most negative responses to test use were exhibited were in respect to voting and marriage. The voter has the right to vote because of his position as a citizen, on much the same basis as the marital partner or prospective spouse is to be respected because of love for who he is, not what he is. In neither case are impersonal criteria to be applied. Moving toward the other end of the array of situations, the most favorably regarded situation, insofar as test usage was concerned, was, as we would expect, the universalistic situation of selecting children for special classes in school. We can expect in the years ahead that if areas of interpersonal relationships become universalistic, the use of standardized tests may soon follow as a partial basis of making decisions about people in these situations. And conversely, if any universalistic social areas change in the direction of particularism, criticisms of the use of standardized tests should rise, greater resistance toward further test usage should appear, and even eventual possible elimination of standardized testing in these situations.

RELATIONSHIP OF SOCIAL BACKGROUND AND PERSONALITY CHARACTERISTICS TO ATTITUDES IN SELECTED SITUATIONS OF TEST USAGE

Of the nine situations presented in Table 12.1, we find that for two of them, the use of tests to make decisions about voting and selection of marriage partners, the distributions of attitudes were so highly skewed toward the negative end that subsequent analyses of correlates of responses were not advised. Another of the items, the use of tests to select leaders in corporations, was so highly correlated with the item on selection of leaders in government that it could be ignored in subsequent analy-

ses. Of the remaining six items, we find that two of them, the use of tests to make decisions about putting children in special classes in school, and secondly, the use of tests to select leaders in government, showed opposite relationships with such background variables as father's education, and with reading test scores, and seemed to us to be most significant for analysis in demonstrating the interaction effects between the nature of the situation and these personal and social characteristics. For this reason these two items were selected for more detailed analyses.

For the remaining four items the following observations serve to guide interpretation of attitudes about test usage in the context they represent. First, the item on using tests to decide who can go to certain colleges shows quite similar distributions of personal and social background characteristics in relation to the attitudes, as was true for the item about putting children in the special classes. For practical purposes, the analysis of the latter item serves to illuminate the results for the former item. Second, the two items on decisions about hiring a person for a job and deciding who should be promoted have similar patterns of correlation with social and personal characteristics as does the item on the use of tests to select leaders in government. Therefore the analysis of the latter is a guide to the understanding of the other two items. Finally, Item 223, that concerned with using tests to find out which children in the family should be given the most education, showed no significant correlations with personal and social background characteristics. The tables presenting the data on relationships of these omitted items with social and personal characteristics are presented in Tables 12.3.1–12.3.36 deposited with the NAPS.

Social Background Characteristics

On the decision to put children into special classes we find father's education related positively to test attitude: the higher the father's education the more likely the respondent is to favor the use of tests for this purpose (see Tables 12.4.1–12.4.2 and Figures 12.1–12.2).

If this finding is valid and due to social class, it should hold across the three types of schools. The data do reveal a replication of the above findings across school types. For example, the percentage of respondents opposed to test usage in regard to special classes for children is as follows: public school 44 per cent, parochial school 40 per cent, and private school 35 per cent (see Table 12.1). On the other hand, the distribution for the selection of leaders in government is as follows: public school 45 per cent, parochial school 50 per cent, and private school 57 per cent. We are certainly confronted here with a strong and consistent interaction between social class and test usage context.

The tentative conclusion is that attitudes toward the fairness of tests do vary as a function of interaction of the situation and the social back-

TABLE 12.4.1 Attitudes toward the fairness of using intelligence test information "to put children into special classes in school" (Item 222) by social background variables

	Yes %	*No* %	*No Opinion* %	*Total* %	(*f*)
			Public School Students		
Father's Education: ($p < .001$)					
Less than 12th Grade	37	48	16	101	(2570)
High School Graduate	42	45	13	100	(1490)
Some College	49	40	11	100	(574)
College or more	56	34	10	100	(548)
			Parochial School Students		
Father's Education: ($p < .001$)					
Less than 12th Grade	45	42	13	100	(706)
High School Graduate	53	39	8	100	(831)
Some College	50	43	7	100	(437)
College or more	57	36	7	100	(619)
			Private School Students		
Father's Education: (n.s.)					
Less than 12th Grade	67	20	13	100	(30)
High School Graduate	54	40	6	100	(68)
Some College	62	33	5	100	(138)
College or more	56	36	7	99	(950)

TABLE 12.4.2 Attitudes toward the fairness of using intelligence test information "to select leaders in the government" (Item 228) by social background variables

	Yes %	*No* %	*No Opinion* %	*Total* %	(*f*)
			Public School Students		
Father's Education: ($p < .001$)					
Less than 12th Grade	41	42	17	100	(2565)
High School Graduate	39	45	17	101	(1470)
Some College	38	50	12	100	(573)
College or more	35	52	13	100	(548)
			Parochial School Students		
Father's Education: (n.s.)					
Less than 12th Grade	41	48	11	100	(709)
High School Graduate	38	50	12	100	(314)
Some College	39	51	10	100	(171)
College or more	39	53	8	100	(618)
			Private School Students		
Father's Education: (n.s.)					
Less than 12th Grade	37	57	7	101	(30)
High School Graduate	40	51	9	100	(67)
Some College	37	51	12	100	(138)
College or more	33	58	9	100	(949)

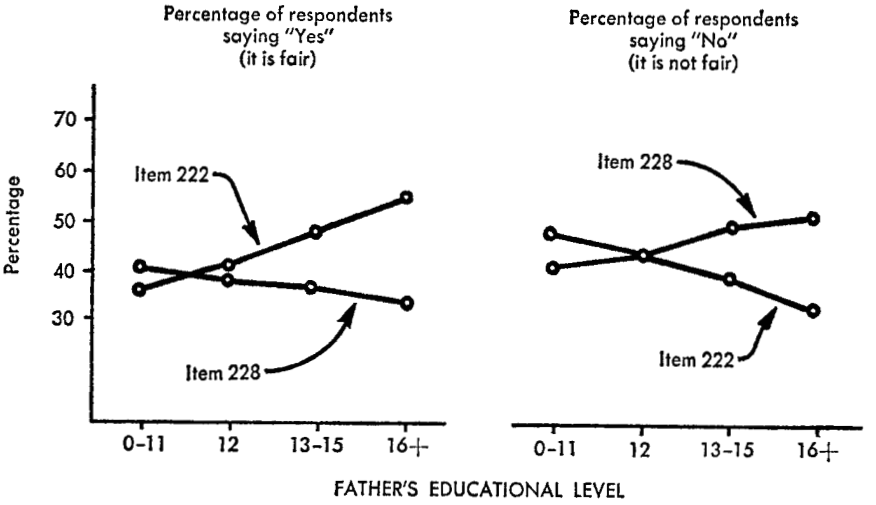

FIGURE 12.1 Percentage of respondents who think it is fair* to use tests to help decide "to put children into special classes in school" (Item 222) or "to select leaders in the government" (Item 228), as a function of father's education (public school students only)

* Both "Yes" and "No" responses are plotted because a third "No Opinion" category was also available to the respondents.

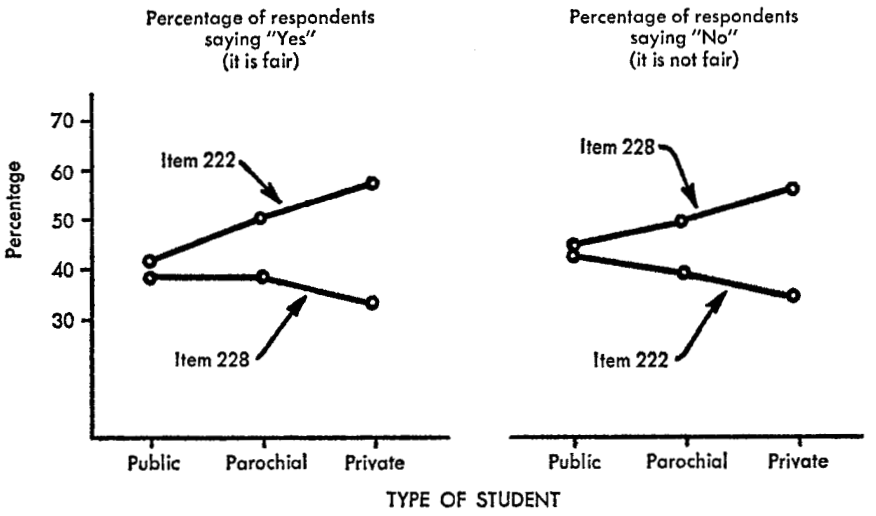

FIGURE 12.2 Percentage of respondents who think it is fair* to use tests to help decide "to put children into special classes in school" (Item 222) or "to select leaders in the government" (Item 228), as a function of type of student

* Both "Yes" and "No" responses are plotted because a third "No Opinion" category was also available to the respondents.

ground characteristics of the students. The effect of social class is different in the different situations presented here. We did, however, make a check on the possible contaminating influence of a variable associated with father's educational background, namely, the perceived accuracy of intelligence tests. As we know from material presented just previously, respondents who view tests as accurate are generally more favorable toward test usage. Thus, controlling for perceived accuracy of tests, we examined the distribution of respondents in favor of test usage as a function of father's educational level (see Tables 12.5.1–12.5.2 deposited with the NAPS) and we found that the interaction between the testing situation and father's education, in relation to attitudes toward the fairness of tests, still remained within each level or category of perceived accuracy of tests.

Thus, of the respondents who think tests are accurate, more of those with high father's educational level (61 per cent) than low father's educational level (41 per cent) respond that test usage to put children into special classes is fair, while fewer (40 per cent) with high father's educational level than those with low father's educational level (44 per cent) respond that test usage is fair to select leaders in government. The same trends are found for those subjects who think tests are inaccurate. For example, of the respondents who think tests are inaccurate, only 29 per cent of those whose father's educational level is "less than 12th grade" are in favor of test usage for ability grouping, while 49 per cent of those whose father's educational level is "college or more" express a favorable opinion toward test usage in this context. On the other hand, of the respondents who think tests are inaccurate, 32 per cent of those whose father's educational level is "less than 12th grade" are in favor of test usage to select leaders in government, while only 22 per cent of those whose father's educational level is "college or more" express such an opinion in this context.

Reading Test Scores, Educational Aspirations, Test-Taking Experience, and Ability Grouping

All four of these student characteristics tend to exhibit similar relationships to perceived fairness of test usage. We therefore concentrate on the findings for the reading test score to simplify the presentation. Tables 12.6.1–12.6.2 present the relevant findings. We see here that there is the same interaction between reading test scores and test use situation that we found with reference to father's education and situation.

For example, in the public school 54 per cent of the respondents with high reading test scores are in favor of using tests to put children into special classes, as against only 32 per cent of those with low reading test scores ($p<.001$). On the other hand, only 36 per cent of the high reading test score respondents favor the use of tests to select leaders in the gov-

TABLE 12.6.1 Attitudes toward the fairness of using intelligence test information "to put children into special classes in school" (Item 222) by reading test score

	Yes %	*No* %	*No Opinion* %	*Total* %	(*f*)
			Public School Students		
Reading Test Score: ($p < .001$)					
Low	32	50	17	99	(1535)
Medium	41	45	14	100	(1710)
High	54	37	9	100	(1626)
			Parochial School Students		
Reading Test Score: ($p < .001$)					
Low	34	52	14	100	(421)
Medium	48	44	8	100	(787)
High	59	34	7	100	(1344)
			Private School Students		
Reading Test Score: ($p < .05$)					
Low	—	—	—	—	(18)
Medium	46	45	9	100	(167)
High	60	34	7	101	(998)

TABLE 12.6.2 Attitudes toward the fairness of using intelligence test information "to select leaders in the government" (Item 228) by reading test score

	Yes %	*No* %	*No Opinion* %	*Total* %	(*f*)
			Public School Students		
Reading Test Score: ($p < .001$)					
Low	42	39	20	101	(1534)
Medium	40	45	15	100	(1706)
High	36	53	11	100	(1625)
			Parochial School Students		
Reading Test Score: ($p < .001$)					
Low	44	41	15	100	(424)
Medium	41	48	12	101	(787)
High	37	56	7	100	(1343)
			Private School Students		
Reading Test Score: (n.s.)					
Low	—	—	—	—	(18)
Medium	33	59	8	100	(167)
High	34	57	9	100	(996)

ernment, while 42 per cent of the low reading test score respondents do ($p<.001$). Results are similar in the parochial school.

Because father's education and reading test score are correlated, it seemed wise to see if the interaction effects with situations we have presented here reflected this correlation, or whether they exist for both characteristics independently. Accordingly, we performed a three-way analysis of the public school group (Table 12.7.1). This analysis shows that at each level of father's education, belief in the fairness of using tests to place children in special classes varies directly with reading test score. But in addition, favorability rises with father's education at each reading test score level, so it is clear that attitudes about the fairness of using tests in the placement situation are influenced by both father's educational level and reading test score. In the parochial school group, favorability in the school placement situation rises with reading test score at each level of father's education, but there is no clear pattern of attitudes related to variations in father's educational level. Least favorable in the parochial school group are those with a low reading test score who come from a high father's educational background (Table 12.7.2).

Looking at attitudes toward the fairness of using test information to help select government leaders, in the public school group opposition to this use of tests rises with reading test score at each father's educational level. There appears to be a slight interaction effect, in that students whose fathers had education beyond high school tend to express more opposition to this test use than those from a lower educational back-

TABLE 12.7.1 Attitudes toward the fairness of using intelligence test information "to put children into special classes in school" (Item 222) by reading test score, controlling for father's education

	Public School Students			
Father's Education:	*Yes* %	*No* %	*No Opinion* %	*Total* % (*f*)
Less than 12th Grade:				
Low Reading Test Score	31	52	17	100 (910)
Average Reading Test Score	38	47	14	99 (840)
High Reading Test Score	48	41	11	100 (552)
High School Graduate:				
Low Reading Test Score	31	53	17	101 (410)
Average Reading Test Score	42	44	14	100 (516)
High Reading Test Score	52	38	10	100 (495)
More than High School:				
Low Reading Test Score	40	40	20	100 (186)
Average Reading Test Score	47	41	12	100 (343)
High Reading Test Score	62	32	6	100 (564)

TABLE 12.7.2 Attitudes toward the fairness of using intelligence test information "to put children into special classes in school" (Item 222) by reading test score, controlling for father's education

	Parochial School Students			
Father's Education:	*Yes* %	*No* %	*No Opinion* %	*Total* % (f)
Less than 12th Grade:				
Low Reading Test Score	31	50	19	100 (159)
Average Reading Test Score	48	43	9	100 (228)
High Reading Test Score	52	36	12	100 (292)
High School Graduate:				
Low Reading Test Score	38	51	11	100 (149)
Average Reading Test Score	47	45	8	100 (262)
High Reading Test Score	63	31	6	100 (398)
More than High School:				
Low Reading Test Score	30	57	13	100 (108)
Average Reading Test Score	50	42	8	100 (291)
High Reading Test Score	60	34	6	100 (644)

ground at each reading test score level (Table 12.8.1). Again the parochial school students show the same general pattern, in that opposition to this use of tests varies directly with reading test score at each level of father's education. Variations in father's education produce no effect among those of average reading test score, the same effect as in the public school for those of low reading test score, and have a slight inverse re-

TABLE 12.8.1 Attitudes toward the fairness of using intelligence test information "to select leaders in the government" (Item 228) by reading test score, controlling for father's education

	Public School Students			
Father's Education:	*Yes* %	*No* %	*No Opinion* %	*Total* % (f)
Less than 12th Grade:				
Low Reading Test Score	43	38	18	99 (910)
Average Reading Test Score	41	43	17	101 (837)
High Reading Test Score	34	52	14	100 (551)
High School Graduate:				
Low Reading Test Score	38	40	22	100 (410)
Average Reading Test Score	41	43	16	100 (515)
High Reading Test Score	37	52	12	101 (495)
More than High School:				
Low Reading Test Score	39	42	20	101 (185)
Average Reading Test Score	37	51	12	100 (343)
High Reading Test Score	36	55	9	100 (564)

lationship to opposition to this test use among high reading test score students in the parochial schools (Table 12.8.2).

The finding that intelligence (as measured by the reading test score) interacts with test use context in the formation of attitudes is further supported by the interactions that occur for the educational aspiration variable, test-taking experience and ability grouping. We might summarize the findings by saying that the respondent with a high reading test score, who tends to be from the upper class, has a higher level of educational aspiration, considerable test-taking experience and is likely to have experienced ability grouping, is more likely to be in favor of using tests for educational purposes, but not for selecting government leaders. On the other hand, the respondent with a low reading test score, who tends to be from the lower class, has a lower level of educational aspiration, less test-taking experience and is not likely to have experienced ability grouping, is less likely to be in favor of using tests for educational purposes, but somewhat more likely to be in their favor for the selection of government leaders.

Personality Characteristics

The personality variable which showed the strongest relationship to attitudes toward test usage is that of fatalism (see Tables 12.9.1–12.9.2 deposited with the NAPS). Respondents low in fatalism as compared to high scorers are more likely to be in favor of using tests to "put children into special classes," both in the public ($p<.001$) and the parochial school ($p<.001$), and there even is a trend in the same direction in the private school ($p<.02$). But these same "low fatalism" respondents are more

TABLE 12.8.2 Attitudes toward the fairness of using intelligence test information "to select leaders in the government" (Item 228) by reading test score, controlling for father's education

	Parochial School Students			
Father's Education:	*Yes* %	*No* %	*No Opinion* %	*Total* % (f)
Less than 12th Grade:				
Low Reading Test Score	50	32	18	100 (161)
Average Reading Test Score	44	48	9	101 (229)
High Reading Test Score	35	58	8	101 (292)
High School Graduate:				
Low Reading Test Score	42	43	15	100 (150)
Average Reading Test Score	38	47	15	100 (262)
High Reading Test Score	36	56	8	100 (398)
More than High School:				
Low Reading Test Score	38	51	11	100 (108)
Average Reading Test Score	41	48	11	100 (290)
High Reading Test Score	38	55	7	100 (643)

likely to be against using tests when they are used to "select leaders in government," both in the public school ($p<.001$) and parochial school ($p<.001$), and to some degree in the private school ($p<.02$). Thus, we find here the same interaction effect as we did for "father's education" and the intelligence-related variables. Since fatalism is strongly related to reading test scores, a check was made (public school only) on the possibility that its effect might be due to variations in reading test scores. We found that with regard to attitudes toward the fairness of using tests to place children in special classes, extent of fatalism makes a difference only for those in the average reading test score group: low fatalists are more favorable to this test use than high fatalists (see Table 12.10.1 deposited with the NAPS). Opposition to the use of tests to help select government leaders is more frequent among low fatalists at all reading test score levels, which suggests that fatalism has an independent influence on this attitude (see Table 12.10.2 deposited with the NAPS).[2]

Not much needs to be said about the effects of the other personality variables investigated. The self-esteem index tends to show the same interaction effects between test context and attitude toward test usage as do the intelligence-related variables, but in a generally weaker manner. Neither the defensive self-confidence factor nor identity confusion and introspective self-concern exhibit strong enough relationships to attitudes toward the fairness of test usage to warrant their discussion.

We find that in the public schools the percentage of high intellectual elitism respondents who favor test usage for ability grouping is 45 per cent as against 36 per cent of those of equalitarian orientation (see Table 12.11.1 deposited with the NAPS). The comparable percentages for the decision on selecting leaders for government are 42 per cent and 37 per cent (see Table 12.11.2 deposited with the NAPS). The trends are similar in the parochial schools and the private schools. These findings are appropriately reflected in the percentages of respondents who are opposed to test usage. Thus, if we want to generalize from these relatively weak differences, we would say that the person who takes the intellectual-elitism viewpoint tends to be more favorably inclined toward test usage, regardless of the context, than the person who holds to the equalitarian viewpoint. This, of course, makes good sense in terms of our conceptualization of this personality dimension. The high elitism orientation

[2] While we decided to restrict our discussion to Items 222 and 228, there is a finding related to fatalism on one of the other items investigated that seems to deserve mention. We have previously seen that one of the contexts that aroused major opposition to the use of tests was the decision "about which children in the family should be given the most education." We related this finding to the particularistic criteria relevant to this item. It is noteworthy to see that the person high in fatalism seems to have resigned himself to accept universalistic criteria even within the very circle of his family. Such a person is less likely to be opposed to the use of tests to "interfere" in his family affairs than is a person low in fatalism (public school 69 per cent versus 81 per cent, parochial school 73 per cent versus 82 per cent, and private school 74 per cent versus 84 per cent; all three $p<.001$).

stresses intelligence and its use to further the interests of both the individual and society; hence, a tool to identify and select those who possess intelligence should be viewed with approval.

On the Interaction Effects

In the responses to the item relating to ability grouping and that related to the selection of leaders in government, we find a persistent interaction between these two test contexts and respondents' characteristics. The respondent who is a member of the lower class, from a less well-educated background, who is less bright, who has limited aspirations and views the world in fatalistic terms, reacts to tests quite differently from the respondent who is a member of the upper class, from a better-educated background, who is bright, has his goals set high, and thinks the world will conform to his wishes.

If we assume that an attitude is related to the functional value of the attitude object (Katz and Stotland, 1959), we can rephrase our question and ask what the tests mean for our respondents. Take the bright, upper-class respondent. Tests helped to identify him as a member of the elite. Tests were instrumental in getting him into the better schools and will continue to do so when he goes on to college. Thus, tests are, in general, useful to him in the educational domain. What about the lower-class, less bright individual? He also is identified by tests, but not as a member of the elite. His identification is the equivalent of being degraded. The school which is supposed to upgrade his intelligence (as he sees it) may condemn him before he ever gets a chance. He is excluded from places of higher learning and tests are instrumental in achieving this.

Thus, we might explain differences in attitudes toward testing in the school context as a function of social class related differences. But how are we to account for the opposite effect where the issue is one of selecting leaders for government. We have seen in Chapter 3 that the perceived importance of intelligence for various decisions in life is related to the respondents' social background. The upper-class respondent seems to take a more skeptical view toward the role of intelligence in life's pursuits. It may well be that the upper-class respondents' more negative view toward test usage for selecting leaders in government is a reflection of this general orientation.

The data in this chapter suggest to us that the sources of negative attitudes toward tests are many and complex—some personal, some social, some motivational, some in terms of values—and that the current use of intelligence tests in American society probably does not take into account the varied values and ideas that are involved when tests are used, and that determine the reaction of the diverse American public toward intelligence testing.

Appendices

APPENDIX A

Sampling and Data Collection

WE DESCRIBE in this Appendix the procedures used to select the secondary school students, along with the methods by which the questionnaire data were collected.

SELECTING THE SECONDARY SCHOOL STUDENTS

In this study our primary concern was to obtain data that could be generalized to all students in public senior high schools. A secondary interest was in obtaining samples of private and Roman Catholic parochial schools.[1]

For the public senior high schools the sample was selected in such a way that it would be representative of the national populations for the school year 1963–1964. This requirement dictated the use of a sampling procedure designed to achieve representation of public schools on a number of dimensions demonstrated (Flanagan *et al.*, 1962) to be related to school testing practices and policies and to school-wide averages of students' scores on standardized aptitude and achievement measures.

It was decided to aim for a sample of 40 public senior high schools.[2] A senior high school was defined as one that includes grade 10 and grade 12. The public school sample did *not* include schools that offer only the vocational curriculum, since Flanagan and his colleagues (1962) have

[1] Roman Catholic schools may be parochial or diocesan, the former associated with the parish and the latter with the diocese. The term "parochial" is used in this book to cover both types of schools.

[2] We actually selected 80 public senior high schools, but for 40 of these no second stage sampling was carried out to select students for the study. These additional 40 schools constituted the sample used in another survey in the Russell Sage Foundation series on the social consequences of standardized ability testing. See Goslin, David A., *Teachers and Testing*, Russell Sage Foundation, New York, 1967.

demonstrated that vocational schools in 1960 differed in certain respects from the comprehensive high school and the academically oriented high school. With regard to the sample of students within schools, it was felt that adequate representation of a cross-section of high school students could be achieved by sampling from grades 10 and 12.

The aim in selecting the private schools and the parochial schools was not at all the same. In these cases the major purpose was to study special groups of students. We wanted a group of private schools that represented the "elite" student. Therefore, the group was made up of schools that, in the judgment of the research staff, were outstanding in academic requirements, reputation, and performance. For the parochial schools we wanted a group that was likely to vary widely in testing policies and practices and in student abilities and beliefs.

Sampling the Public High Schools

A stratified random sampling procedure was used to select the public senior high schools (Shaycoft, 1966). The Project Talent Taxonomy of public senior high schools (Flanagan *et al.*, 1962) was used to establish the stratification, and the quotas, for various types of schools. The Taxonomy is based on U.S. Office of Education region, community size, and an index of the socioeconomic level of the neighborhood. The size of the senior class was also considered in selecting the schools. The categories of the Project Talent Taxonomy of high schools are:

Code	*Description*
21	Cities A—low-cost housing—low income
22	Cities A—moderate and high-cost housing
31	Cities B—low-cost housing and low income
32	Cities B—moderate and high-cost housing
41	Northeast—urban—low-cost housing and low income
42	Northeast—urban—moderate and high-cost housing
43	Northeast—small town
44	Northeast—rural
51	Southeast—urban—low-cost housing and low income
52	Southeast—urban—moderate and high-cost housing
53	Southeast—small town
54	Southeast—rural
61	West—urban—low-cost housing and low income
62	West—urban—moderate and high-cost housing
63	West—small town
64	West—rural
10	All vocational high schools

Community sizes are:

Cities A—more than 1,500,000 population (1960 Census)

Cities B—between 250,000 and 1,499,999 population
Urban—between 5,000 and 249,999 population
Small town—below 5,000 population

In this study the following groups were combined: 21 and 31, 22 and 32, 43 and 44, 53 and 54, 63 and 64. Group 10 was not included since this is the category for vocational high schools.

The following codes are used to designate categories of senior class enrollments:

1—0 to 24 seniors
2—25 to 99 seniors
3—100 to 399 seniors
4—400 seniors or more

Schools were selected at random from the U.S. Office of Education's *Directory of Public Secondary Day Schools, 1958–59.* Schools were accepted for the sample as long as the quota for that particular type of school had not been filled. When the quota was filled, the schools were rejected until the number of schools needed was obtained.

The specific procedures for selecting the public senior high schools and students are presented below.

1. *Random Selection of Schools.* A list of public senior high schools is in the *Directory of Public Secondary Day Schools, 1958–59,* mentioned above. For purposes of random sampling, each school on the list was assumed to be identified by a six-digit number of the form XXX–X–XX. The first three digits indicate the page in which the school is listed in the *Directory;* the next digit represents the column on the page; and the last two digits represent the position of the school in the column.

A sequence of six-digit random numbers was obtained from a table of random numbers. A number was discarded if the first three digits were not in the appropriate range for the pages in the *Directory,* 011–158. The school corresponding to each random number was selected. If it turned out that there was no entry in the *Directory* corresponding to the random number, that number was discarded and the next one looked up. Similarly, if the school turned out to be one not in the population being sampled (for example, a junior high or a vocational school) it was discarded.

The group (Project Talent High School Taxonomy group and senior class size category) to which a school belonged was determined, and it was then entered in the sample if the quota for its category had not already been filled.

2. *Determination of Taxonomy Group Characteristics and Senior-Class Size.* The size of the senior class and U.S. Office of Education region were obtained from the *Directory of Public Secondary Day Schools, 1958–59.* City size was determined from Bureau of the Census data in the

World Almanac (1960), using the mailing address given in the *Directory.* Schools were entered in the sample in the order in which they were drawn if the quota for the category had not been filled, but were rejected after the quota had been filled. Additional samples were selected since it was necessary to determine the socioeconomic level of the neighborhood of the school (for city schools) and additional schools would be required as replacements for rejects (schools that did not meet "SES" specifications).

Two reserve samples were selected for the nonurban schools (taxonomy groups 43, 44, 53, 54, 63, and 64) and four reserve samples were selected for the urban schools (taxonomy groups 21, 22, 31, 32, 41, 42, 51, 52, and 61, 62). Four samples were selected for the urban schools since it was anticipated that some urban schools that were not in the appropriate socioeconomic category would be dropped.

The Retail Credit Company was employed to determine the socioeconomic level of the schools. Socioeconomic level of the school was defined in terms of the following item:

"The residencies in the area served by the school are best described as *primarily:*

1. expensive private homes
2. moderate priced homes
3. low-cost homes
4. high-rental apartments
5. moderate-rental apartments
6. low-rental apartments
7. low-income areas
8. about equally, apartments and homes
9. students are resident, students—cannot estimate."

The schools were dichotomized into "low" versus "medium" and "high" socioeconomic status, using options 3, 6, and 7 versus 2, 4, 5, 8, 9. The schools were classified upon receipt of the returns from the Retail Credit Company. If it turned out that a school in the first sample drawn did not have the appropriate "SES" characteristics, the next alternate in the same taxonomy and senior-class size category was selected.

Vocational schools were excluded from the sample on the basis of the school name; in addition, a check was instituted with U.S. Office of Education personnel familiar with the schools to assure that vocational schools were not included in the sample. Also excluded from the sample were schools tested by Project Talent in 1960 (Flanagan *et al.*, 1962).

3. *Sampling Students in Public Senior High Schools.* The sample consists of all students in grades 10 and 12 from schools with senior classes under 100. Where class size exceeded 100, it was felt that it would not be necessary to have the participation of all of these students

since an adequate sample size could be achieved with just a proportion of them. Therefore, a subsampling procedure was planned and carried out by eight appointed representatives of the American Institutes for Research —a collaborator in this survey.

The number of students sampled from each school and grade was determined judgmentally by considering the Project Talent student population figures for each taxonomy group and senior class size category. Consideration was also given to the number of students needed in these schools to achieve proportional representation and to obtain a minimum desired sample of 4,000 students in the public schools. As it turned out later, the numbers selected need not have varied from school to school. At the time the quotas were established, it had been planned to oversample and discard cases in order to achieve proportional representation. Subsequently, it was decided to weight the data to achieve proportionality.

Consideration was given to the merits of random sampling procedures and systematic sampling procedures for selecting the students. It was felt that a random procedure would be more difficult to draw from the information available in the schools and that the systematic sampling procedure would be simple administratively and was not likely to result in biased results. The representatives were instructed, therefore, to use the systematic procedure, arranging students in alphabetical order by grade, starting at a randomly selected point in the list and selecting every Nth name following. If they had any reason to suspect that this procedure would result in a biased sample, particularly with respect to scholastic ability, they were instructed to get in touch with the project director so as to consider an alternative procedure. The systematic sampling procedure was used by all eight representatives.

4. *Weighting the Data.* The effects of chance and differences in participation rates for the various taxonomy groups resulted sometimes in oversampling and sometimes in undersampling of schools in specific categories of the high school taxonomy. For these reasons the data were weighted to bring them into proportion to their representation in the population of schools and of students. The weighted responses to each of the questionnaire items were almost identical with the unweighted responses. Therefore we present only unweighted data in this book.

Selecting the Parochial Schools

A group of 10 diocesan or parochial secondary schools was obtained through the cooperation of the National Catholic Education Association (NCEA). At our request, a list was submitted of 20 secondary schools that NCEA felt adequately represented the Roman Catholic secondary schools of the nation. Thus, the method of selection was purposive rather than statistically random. Ten schools were selected from the list of 20 for wide geographical dispersion. The Right Reverend Monsignor O'Neil

C. D'Amour wrote to the Diocesan Superintendents and informed them of the purpose of the study and urged their cooperation. As a result, all of the schools invited agreed to participate in the study. Subsequently, one of the 10 schools withdrew because of scheduling difficulties. All available students in grade 10 and grade 12 in these schools were included in the sample.

Selecting the Private Schools

A group of nine private secondary schools, five male and four female, was obtained from a larger listing of these schools prepared by Russell Sage Foundation staff. The schools are primarily in the East and are among those generally considered to be leading preparatory institutions. As with the parochial schools, the method of selection was purposive rather than random. Each school on the list was informed of the purpose of the study and urged to cooperate. Repeated contacts were made until the list was exhausted. As a result, nine schools agreed to participate in the study; five male schools and four female schools.

COLLECTING THE DATA

Invitations to Participate in the Study

A letter was sent to the school principal requesting his cooperation and that of his staff and students. In addition, an enclosure described the project briefly and the requirements in participating in the project. Briefly, the letter and enclosure emphasized the importance of obtaining objective information regarding the effects of standardized ability testing on the school's staff and on the students. Also, a financial incentive was offered the principals in public and in private schools for their cooperation. Information copies of the letter and enclosure were sent to school superintendents in the districts in which the schools were asked to participate.

Also enclosed for their convenience in responding were a letter of reply and a stamped return envelope. The letter of reply provided space for reporting the number of students in grade 10 and in grade 12, and the date on which they planned to administer the questionnaires to the students.

Two follow-up letters were prepared. The first letter was sent to each school from two to three weeks after the mailing of the letter of invitation. The second follow-up letter was sent if a reply was not received two weeks following the mailing of the first follow-up letter. In a number of cases when replies were not received within a reasonable time following the mailing of the first or second follow-up letter, the principals were called long distance.

Administration of the Reading Test and the Survey Questionnaire

The administration of the project was scheduled for January and February, 1964. For a number of schools it was necessary to permit administration of student materials in March because of scheduling difficulties. All materials for the project were sent to the school principal, who was asked to act as the coordinator for the project or to appoint someone as his representative to carry out these duties. The survey questionnaire and a reading comprehension test developed by Project Talent (Flanagan *et al.*, 1964) were administered by members of the school staff. The following two guides[3] were sent to the schools to provide them with information regarding procedures for the handling, administration and return of all materials:

1. Local Coordinator's Guide for the survey questionnaire and reading comprehension test
2. The Administrators' Guide for the survey questionnaire and reading test

Record forms were also sent to the schools in which the students were tested. The record form was to be completed by each administrator as a means of checking on proper administrative procedures.

Processing, Scoring, and Analyzing the Data

When the data were received, they were checked to make sure that the materials were returned that were requested in the Local Coordinator's Guide. When some materials were missing, the schools were requested to testify to their security. In most cases the missing materials had been destroyed or, as far as we could tell, were mailed out but not delivered.

All student answer sheets, more than 9,000 of them, were scanned to eliminate cases in which the students appeared to be marking the answer sheet in a geometric pattern, to eliminate those in the eleventh grade (only tenth- and twelfth-graders were to participate), and to eliiminate those answer sheets for students who did not appear to be answering seriously. The answer sheets were forwarded for processing to the Measurement Research Center in Iowa City, Iowa. The Measurement Research Center produced high density computer tape output on which was entered every response for each student. The computer tape was forwarded to the University of Pittsburgh, the reading comprehension test was scored, percentile rank conversions were obtained for grade 10 and grade 12 norms based on Project Talent data (Flanagan *et al.*, 1964), and the list of scores and percentile rank conversions forwarded to the schools.

[3] Copies of these guides can be found in Brim, Orville G., Jr., *et al.*, *The Use of Standardized Ability Tests in American Secondary Schools and Their Impact on Students, Teachers, and Administrators*, Technical Report #3, Russell Sage Foundation, New York, 1965.

The survey questionnaires were coded, key-punched, and sent to the University of Pittsburgh Data Processing and Computation Center for entry on computer tape. Two high-speed digital computers, the IBM 7070 and the IBM 7090, were used in preliminary analysis. Subsequently, the data were transferred to IBM cards and sent to the Abacus Associates in New York City. All detailed analyses reported in this book were carried out on an IBM 1620 computer, under the direction of Mr. Mendl Hoffman of Abacus.

APPENDIX B

Characteristics of the Respondents

PART ONE: SOCIAL BACKGROUND

THIS IS the first of three sections that describe the personal and social characteristics of the student respondents in this study. We have been interested throughout the study in how various beliefs and attitudes about intelligence and intelligence tests are related to social background characteristics, and accordingly, throughout the volume a more or less familiar set of sociological items are routinely analyzed in relation to attitudes and beliefs.

The characteristics we deal with are father's education, sex, age, race, and religion. As attributes of the respondents, these characteristics may be considered temporally and logically prior to the attitude and belief dimensions which are the dependent variables of the study. Thus, they suggest causal relationships and possess some explanatory powers. They may be held to account for differences in attitudes found between schools or they may be responsible for variations in any one attitude or belief dimension within a given type of school. Moreover, these social background characteristics are correlated with the other independent variables in the study, the characteristics of the students including measured verbal intelligence, educational aspiration, and certain personality characteristics such as fatalism and self-confidence. As such, the interrelationships between these aspects of personality and social background have an intrinsic interest for the broader study of personality and social structure.

Throughout the book we present and treat data from the three school populations separately. The three school types differ along a number of dimensions relevant to our analyses, but the major characteristic that differentiates them (aside from religion) is one of father's education.

This is, of course, an expected finding. The public school sample was selected to be representative of the respective national population. The method of sampling of the parochial and private schools was purposive rather than statistically random, and the emphasis among the latter was on those generally considered to be leading preparatory institutions. The fact that the private and parochial schools rely heavily on the support of middle and upper-middle class parents is well known. The ordering of the three types of schools along a dimension of social class is fortunate, in that it provides us with the opportunity of checking the generality of any finding relating to social class at three different levels of that variable. On the other hand it invites, of course, the explanation of school type differences primarily in terms of social class.

Still, when we find differences between the types of schools when the comparison groups are equated on socioeconomic background, as, for instance, when we compare students whose fathers are all college graduates, across the three different types of schools, and still find differences between the school populations, we can refer to these as the consequence of some characteristics of the schools, as correlates of "school atmosphere." We recognize that we do not know enough about the characteristics of the schools, in these instances, to say much about causes, but we do flag them for social scientists interested in the effects of school atmosphere, and on occasion we speculate about these matters ourselves.

Let us now show how the three types of schools are, in fact, aligned along the dimension of social class. There are a number of items in the questionnaire that serve as indicators of social class (Table B.1). We see that the public school lies on the lower end of the continuum, the parochial school somewhere in the middle, and the private school at the upper end. For example, the modal frequency for father's education in the public school is the 7-to-11-year interval. The parochial school child tends to have a father who graduated from high school. The private school student's father, in contrast, is reported as having 17 years or more of education. A similar though not quite as strong a trend can be found for "mother's education." The variable that most strongly sets off the private school from the other two is the number of books in the home. While 62 and 44 per cent of the public and parochial school students report fewer than 101 books (one bookcase) in the home, only 4 per cent of the private school students give such a report. On the other hand, 55 per cent of the private school students report 501 or more books in their home, as compared to only 3 and 5 per cent of the public and parochial students. These reports of objective criteria of social class are reflected also in subjective reports of the same dimension. While most students in all three schools consider themselves "middle class," 22 per cent see themselves as "working class" in the public school, as compared to 14 and 2 per cent in the parochial and private schools; and 41 per cent re-

TABLE B.1 Distribution of indicators of social class

Responses to Item 20: *"What is the last grade your father completed in school?"*
Item 21: *"What is the last grade your mother completed in school?"*
Item 22: *"How many books are there in your home?"*
Item 15: *"If you were asked to use one of these four names for your social class, which would you say your family belonged in: middle class, lower class, working class, or upper class?"*

	Secondary School Students		
	Public %	*Parochial* %	*Private* %
Father's Education			
0 to 6 years	9	3	1
7 to 11 years	41	24	2
12 years (high school graduate)	29	32	6
13 to 15 years (some college)	11	17	12
16 years (college graduate)	7	13	35
17 years or more (graduate or professional school)	4	11	45
TOTAL	101	100	101
	(5248)	(2609)	(1192)
No Response	(73)	(27)	(6)
Mother's Education:			
0 to 6 years	4	2	0
7 to 11 years	36	23	1
12 years (high school graduate)	41	45	21
13 to 15 years (some college)	11	17	26
16 years (college graduate)	7	10	39
17 years or more (graduate or professional school)	2	4	14
TOTAL	101	101	101
	(5282)	(2619)	(1193)
No Response	(39)	(17)	(5)
Books in Home:			
None, or very few (0–10)	4	2	0
A few books (11–25)	18	9	1
One bookcase full (26–100)	40	34	2
Two bookcases full (101–250)	23	30	9
Three or four bookcases full (251–500)	12	20	33
A room full—a library (501 or more)	3	5	55
TOTAL	100	100	100
	(5311)	(2628)	(1192)
No Response	(10)	(8)	(6)
Perceived Social Class:			
Lower	1	1	0
Working	22	14	2
Middle	61	75	52
Upper	4	6	41
I do not know	12	5	5
TOTAL	100	101	100
	(5309)	(2629)	(1194)
No Response	(12)	(7)	(4)

TABLE B.2 Correlations among social class indicators

	Secondary School Students			
	Father's Education	*Mother's Education*	*Perceived Soc. Class*	*Books in Home*
	*Public School (N = appr. 900)**			
Father's Education	—	.47	.23	.38
Mother's Education		—	.20	.34
Perceived Soc. Class			—	.19
	*Parochial School (N = appr. 500)**			
Father's Education	—	.56	.20	.43
Mother's Education		—	.15	.35
Perceived Soc. Class			—	.27
	*Private School (N = appr. 230)**			
Father's Education	—	.25	.06	.31
Mother's Education		—	.06	.25
Perceived Soc. Class			—	.23

* The correlations above are based on a systematic sample of 999 cases from the Public School total sample, and 20 per cent each of the Parochial and Private School total samples. The number of cases per correlation vary as a function of the frequencies in the respective "No Response" categories. Except for the two correlations of .06 in the Private School table, all of the above correlations are significant at $p < .01$.

spond as "upper class" in the private school, as compared to only 4 and 6 per cent in the public and parochial schools, respectively. There is no question that each of these indicators reflects differences between the three schools that are usually associated with social class differences.

However, we should not interpret the data as indicating that a "low" response on one of these indicators necessarily implies a "low" response on one or all of the others. There is a likelihood that respondents will occupy similar positions on these dimensions, but this is far from certain. The degree of the interrelationship of these variables is indicated by the correlations in Table B.2. Inspection shows that the interrelationships between the different indicators of social class are relatively slight. While all but two are statistically significant at conventional levels ($p<.01$),[1] they are not strong enough to allow us to predict with any amount of precision the position of a respondent on one variable from his position on the other variable. Knowing that a student's father has a relatively high education tells us that there is a greater likelihood of his having more books in the home (that is, r=.38, .43, .31, respectively); but in making

[1] All correlations in this study are based on a systematic sample of 999 cases from the public school sample, and 20 per cent each of the parochial and private school samples. Accepting as a minimal criterion a significance level of $p<.01$ implies then a correlation of at least .08 in the public school, .12 in the parochial, and .18 in the private school, respectively. Such a minimal relationship, however, merely implies an other than chance relationship, and should not be taken as an indication of the strength of the relationship, which is instead expressed by the size of the coefficient obtained.

such predictions for individual students, we would be in error a considerable number of times.

There is a further point here to note; one that comes up over and over again in making comparisons between the three types of schools. The relationships between variables within schools tend to become weaker as we go from public, through parochial to private schools. This is a reflection of the fact that the public school sample is the most heterogeneous one; the parochial school and even more so the private school sample are considerably more homogeneous not only in terms of social class variables, but also in terms of a number of individual differences and experience variables. This means that the range of scores on these variables is restricted in these two school samples relative to the public school sample, resulting in lower correlation coefficients.

Given the low interrelation of these indicators of social class, we were faced with the problem of choosing the most meaningful one to be used in later analyses. The choice was "father's education," one variable that has traditionally been used as an indicator of social class. Considering the further fact that in this study we are much concerned with questions of intelligence and learning, it seemed appropriate to use education as the preferable index.

In summary, the data show that the three types of schools are differentiated along a dimension of social class, with the public schools taking the lowest position, the parochial schools a middle one, and the private schools the highest. While this was shown to hold for a number of indicators of social class, it was decided to use "father's education" as the primary index in all further analyses.

We turn now to the other social background variables (Table B.3). For the sex of the respondents we see that in the public schools, and even more so in parochial schools, there is a predominance of females over males. (In the private schools where the pattern is reversed, it is because in the sample obtained there were five male and only four female private schools). The difference in the public schools probably reflects a higher dropout rate after age 16 for males than for females, while the even larger difference in the parochial schools may also reflect this process and possibly a selection preference by the parents of parochial schools for daughters. Two points need to be kept in mind in examining relationships between sex and attitudes in all analyses. First, the private schools were segregated schools; that is, the girls and boys were in different schools, in contrast to the case for the students in the public schools and in the parochial schools. Thus, we would expect differences between the sexes in the private school population which may be attributable to the differences in schools, rather than to sex differences, which would not appear in the parochial and public schools. Second, the relationship between schools and other factors may in the case of the parochial schools,

TABLE B.3 Distribution of social background variables, other than social class indicators, used in subsequent analyses

Responses to Item 2: *"Your sex,"*
Item 7: *"Religious background,"*
Item 8: *"Race,"*
Item 3: *"What grade are you in now?"*

	Public %	*Parochial* %	*Private* %
Sex:			
Male	46	42	54
Female	54	58	47
TOTAL	100	100	101
	(5321)	(2629)	(1197)
No Response	(0)	(7)	(1)
Religious Background:			
Protestant	51	2	77
Catholic	22	96	7
Jewish	4	0	4
Other	18	1	8
I prefer not to answer this question	6	1	4
TOTAL	101	100	100
	(5308)	(2633)	(1194)
No Response	(13)	(3)	(4)
Race:			
White	91	95	95
Negro	7	3	1
Oriental	0	0	1
Other	1	1	0
I prefer not to answer this question	2	1	3
TOTAL	101	100	100
	(5315)	(2633)	(1194)
No Response	(6)	(3)	(4)
Grade:			
9th	0	0	0
10th	57	54	50
11th	0	0	0
12th	43	46	50
TOTAL	100	100	100
	(5305)	(2631)	(1195)
No Response	(16)	(5)	(3)

where there is a predominance of females over males, or in the case of the private schools, where there is a predominance of males over females, reflect sex-linked attitudes rather than real school differences; in such instances an examination of the role of sex differences in the relationship is desirable.

The next social background variable is the student's grade. Only students who were in the tenth or the twelfth grade were included in the

samples. The grade variable may also be interpreted as an age variable, of course; the age distribution of the respondents shows two modal points, one at age 15 and the other at age 17, corresponding to the two grade levels. A consideration of grade as a dichotomous age variable seems therefore quite reasonable and appropriate. While there is an equal proportion of students in each grade in the private schools, both the parochial and even more so the public schools have a greater proportion of students in the tenth grade than the twelfth grade, again reflecting the dropout of older students in these schools.

The race categorization, while allowing for "Oriental" and "Other" classes, is of interest mainly as a white-Negro distribution. There are too few students in the other categories to make the data meaningful. The Negro student is underrepresented in this public school population: in proportion to the general Negro population in the United States we would have expected to find about 11 per cent Negro students; our sample shows less than 7 per cent.

The last social background variable to be considered is religion. About half of the students in the public school report their religious background as Protestant. Nearly a quarter of the respondents (22 per cent) are of Catholic background and about 4 per cent are Jewish. There is a considerable proportion of students who list their religious background as "Other" (18 per cent). The parochial schools have a student body that is 96 per cent Catholic and the private schools are made up predominantly of students with Protestant background (77 per cent). It is interesting to note that the proportions of Jews in the public and private schools are about equal (4 per cent in each).

Our discussion of these background variables is to provide a basis for their use in accounting for differences in attitudes toward tests and testing, both within and between schools. It is necessary, therefore, to establish the relative independence of these factors if we want to relate them uniquely to a given finding. Our method of demonstrating the relationship between these variables is the correlation coefficient (Table B.4). A few words need to be said about some of the problems involved in arriving at these coefficients. In the case of race and religion, we are dealing with variables that consist of distinct categories that are qualitatively different rather than categories that are arranged along a continuum. To interrelate such variables in the manner chosen, it is necessary to consider each category as a variable in its own right. Thus, the race variable is treated as two variables. One is a "white-nonwhite" variable: a person is either white or he is not white. Similarly, we have a "Negro-non-Negro" variable: a person is either Negro or he is not Negro. Having done this, we can then relate these new variables to continuous variables like "father's education." There is, however, one drawback to this procedure which lies not in the statistical method chosen, but in

TABLE B.4 Correlations among social background variables*

Secondary School Students

	(a) Father's Education	(b) Sex	(c) Age	(d) White	(e) Negro	(f) Protestant	(g) Catholic	(h) Jewish	(i) Other
					Public School				
(a)	—	.00	−.01	.10	−.12	.11	.01	.16	−.18
(b)		—	.04	−.08	.10	.06	.02	.00	−.03
(c)			—	.04	−.02	.08	−.01	.10	−.08
(d)				—	—	.10	.15	.02	−.14
(e)					—	−.07	−.14	−.05	.17
					Parochial School				
(a)	—	−.06	−.01	.03	.03	—	.01	—	−.01
(b)		—	.00	.02	−.04	—	.05	—	.03
(c)			—	−.05	.04	—	−.01	—	−.01
(d)				—	—	—	.46	—	−.27
(e)					—	—	−.59	—	.38
					Private School				
(a)	—	−.04	−.03	—	—	.06	−.09	−.11	.05
(b)		—	.07	—	—	.11	.04	.01	−.06
(c)			—	—	—	.10	.10	.00	−.13

* Correlations between categories of a dichotomy have been omitted. Similarly, correlations between variables which have less than 2 per cent of the total frequency in any one category have been omitted.

the nature of the data. To establish the existence of a relationship between two variables, each of which may occur in two ways, it is necessary that each variable manifest itself frequently enough in each of the possible ways so that enough comparisons between pairs of data can be made. If the intention is to establish the relationship of being Negro or being non-Negro and father's education, and this is done with a sample in which there are hardly any Negroes, it is clear from the beginning that no matter how strong the relationship between being Negro and father's education is for the few Negroes involved, the effect for the sample as a whole will be negligible. This suggests that we should not interpret the correlation coefficients in Table B.4 in an absolute manner. The fact that the proportion of respondents in either category of the dichotomies may be quite small seriously reduces the possible size of such coefficients. In the extreme cases, for example, Protestants in the parochial schools and so forth, we have omitted the coefficients entirely.

What, then, does Table B.4 tell us? A number of relationships as well as some nonrelationships become obvious. Let us first discuss the public school findings. Father's education is not or is only negligibly related to sex and grade. Similarly, grade and sex are unrelated. This makes good sense for there is no reason that we should have expected a correlation between these variables. Being white relates positively to father's education: the likelihood of having a father with a greater amount of educa-

tion is greater for students who are white than those who are nonwhite. Conversely, being Negro relates negatively to father's education: the Negro student is more likely to have a father with a lower education than the non-Negro. A relationship turned up between race and sex. Being white relates negatively to sex, which means that being a white student increases the likelihood of being a male and decreases the likelihood of being female. This finding seems to imply that your chances of being in high school are better if you are a Negro girl than if you are a Negro boy. It might mean that if you are a Negro boy you are working rather than going to school.

Father's education also relates positively to being either Protestant or Jewish. It does not relate to being Catholic. It relates negatively, and relatively strongly so, to being of some religion other than the ones listed. The fact that the "other religion" variable relates to lower education, that is, to a lower social class status ties in with another finding, namely, that the "other religion" variable also relates positively to being a Negro.

There is a slight positive relationship between age and being Protestant or Jewish. In turn, there is a slight negative relationship between age and being of some "other religion." This might relate to differential dropout rates which again might tie in with the fact already mentioned that being Negro relates positively to being of some "other religion." Being white relates positively to all of the three listed religions and negatively to the "other religion" variable.

We turn next to the relationship of the background variables within the parochial school, keeping in mind that we had to eliminate from consideration a number of variables because of their limited number of responses. We note that father's education does not relate significantly to any of the variables examined. Neither does sex or grade. A rather strong relationship appears between race and religion, but we must remember that these are based on a ridiculously small number of cases. Being white relates strongly to being Catholic; being Negro, on the other hand, relates strongly to being non-Catholic. Thus, it appears that the very few non-Catholics who are in parochial schools tend to be Negroes. It is also apparent again, as it was in the public school, that being Negro relates positively to being of some "other religion," whereas being white relates negatively to this variable.

The overall finding in regard to private schools can be summarized very quickly. None of the variables interrelates significantly with each other. We must remember that the private schools represent a much more homogeneous group which may account for the lack of correlations.

This concludes our discussion of the background variables that are used in the analyses. We demonstrated the fact that the three school types align themselves on a social class continuum, with the public school taking the lowest position, the parochial school next, and the

private school taking the top position. We pointed to some of the obvious religious differences between the school types and mentioned differences as they relate to sex, grade, and race. There is a slight preponderance of females in the public and particularly the parochial schools, while in the private schools there are more males because one more male than female school was included. Public and parochial schools also tend to have somewhat more students in the tenth grade than the twelfth grade. Negro students are underrepresented in the public schools; there are fewer than 100 in the parochial schools, and about 10 in the private schools.

As to the interrelationships among the background variables, we found some relatively minor correlates in the public school sample. In the parochial school these became even weaker and they disappeared entirely in the private school. In most general terms, we can say that the public school sample represents the most heterogeneous group, the parochial school a somewhat more homogeneous one, and the private school the most homogeneous of the three. In more specific terms, we found father's education unrelated to sex and grade, and sex and grade unrelated to each other. In the public school, it became evident that father's education relates positively to being white and negatively to being Negro. Being Protestant relates positively to father's education, while being of some "other religion" relates negatively. This "other religion" variable was also shown to relate positively to being Negro.

PART TWO: READING TEST SCORES AND EDUCATIONAL ASPIRATIONS

This section discusses two characteristics that are intimately related to the beliefs and attitudes about intelligence. These two variables are: the individual's score on a standardized reading test, and his educational aspirations, that is, his plans for further education.

Reading Comprehension Test

A measure of the respondents' intelligence is of perhaps the greatest interest when examining their attitudes and beliefs about intelligence and intelligence tests. To get this measure a reading comprehension test was administered to all of the respondents in the three types of schools immediately after the students had completed their questionnaires. This test is described in detail in a 1962 report by Project Talent.[2] Data on reliability, provided by Project Talent, indicate that the lower-bound estimate, a split half reliability coefficient with Spearman-Brown correction, ranges from .82 to .87 for boys and girls and for the four

[2] Flanagan, J. C., J. T. Dailey, M. F. Shaycoft, W. A. Gorham, D. B. Orr, and Isadore Goldberg, "Design for a Study of American Youth," *The Talents of American Youth.* Houghton Mifflin Co., Boston, 1962.

grades, ninth through twelfth. There are good grounds for the assumption that the dimension measured by this test represents a kind of general intelligence. Data on the validity of the test include multiple correlations with four standard test batteries, as follows: Differential Aptitude Test (DAT) .78, General Aptitude Test Battery (GATB) .75, Essential High School Content Battery .82, and Fact Battery .80. Additional information about what the test measures may be gleaned from the following: a correlation between reading test scores and whether a student entered college within one year after his class was graduated from high school is, for some 17,000 seniors, .42. Reading test scores were also correlated with the Air Force Officers Qualifying Test (Forms A and B) for 1,200 airmen, resulting in a coefficient of .60.

In the present study raw scores were converted into percentile ranks using norms based on Project Talent data from their national study, as reported by Flanagan and his colleagues. The conversion table is presented as Table B.5. These data show higher overall scores of the reading comprehension test for the twelfth-grade students compared to the tenth-grade students. This would result both from dropouts from school of the lower scoring students over the two-year period, and from the scores improving as a consequence of two more years of education. In our analyses we use only decile groupings of the percentile ranks and never the raw scores. This means, for example, that in the eighth decile, tenth-grade students will have earned scores from 36 to 38, while the twelfth-grade students needed scores of 41 to 42 to get into the eighth decile. Thus, the reading test variable used in this study reflects the student's relative standing in reading comprehension within his own grade in school. It follows that there are no grade differences in decile frequency on this variable, because they were converted separately for each grade.

The distribution of scores, arranged by deciles, for the three types of schools is presented in Table B.6. An inspection of the data indicates gross differences in reading comprehension test scores, and by implication in intelligence, between the three types of schools. Thus, the median reading test score in the public schools lies in the sixth decile; in the parochial school it moves up to the eighth decile, and in the private schools the median is the tenth decile. No doubt the differences in median scores between the schools reflect differences both in initial selection and later retention of students, and in differences in the quality of education obtained in the schools.

Correlations were computed between the reading test score and the other social background characteristics described previously, so that we are aware of these relationships in the analyses of beliefs and attitudes (Table B.7). (Chapter VII presents a detailed cross-tabular analysis of reading test scores by these social characteristics, where the cross-tabulation is used in control for self-estimates of intelligence.) Father's edu-

TABLE B.5 Raw score to percentile rank conversions for grades 10 and 12 for the reading comprehension test (R-250)*

Raw Score	Percentile Rank		Raw Score	Percentile Rank	
	Grade 10	Grade 12		Grade 10	Grade 12
48	100	99	24	35	19
47	99	97	23	32	17
46	98	94	22	29	15
45	97	90	21	26	14
44	95	86	20	24	12
43	92	81	19	21	11
42	90	77	18	19	9
41	87	72	17	17	8
40	84	68	16	15	7
39	82	64	15	13	6
38	79	60	14	11	5
37	76	56	13	9	4
36	72	53	12	7	4
35	69	49	11	6	3
34	66	46	10	5	2
33	63	42	9	4	2
32	60	39	8	3	1
31	57	36	7	2	1
30	53	33	6	2	1
29	50	31	5	1	1
28	47	28	4	1	1
27	44	26	3	1	1
26	41	24	2	1	1
25	38	21	1	1	1
			0	0	0

* Taken from data books on "82 Project TALENT Variables, 10-per-cent sample" R-250, cumulative percentages. Sample A-10.0-3.

Weighted N:
Grade 10: 1,633,800
Grade 12: 1,297,900

Unweighted N:
Grade 10: 7,790
Grade 12: 6,248

TABLE B.6 Reading comprehension test scores by deciles

Decile Scores	Secondary School Students		
	Public %	Parochial %	Private %
10th	13	23	54
9th	9	15	20
8th	9	13	11
7th	13	14	9
6th	9	8	3
5th	11	8	2
4th	10	7	1
3rd	10	6	1
2nd	9	4	0
1st	8	3	1
TOTAL	101	101	102
	(5290)	(2628)	(1188)
No Response	(31)	(8)	(10)

TABLE B.7 Correlations of reading test scores and educational aspirations with social background characteristics

	Secondary School Students					
	Public		*Parochial*		*Private*	
Social Background Characteristics	*Reading Test Scores*	*Educational Aspirations*	*Reading Test Scores*	*Educational Aspirations*	*Reading Test Scores*	*Educational Aspirations*
High Father's Education	.26	.34	.19	.30	n.s.	n.s.
Male	n.s.	n.s.	n.s.	−.32	n.s.	−.37
12th Grade	n.s.	*	−.14	*	−.14	*
White	.16	n.s.	*	*	*	*
Protestant	.24	.14	*	*	*	*
Catholic	n.s.	n.s.	*	*	*	n.s.
Jewish	n.s.	.14	*	*	*	*

* Correlations not computed.

cation, the first of the social characteristics, is related to reading test scores in the public school (r=.26), and to a lesser degree in the parochial (.19) and private school (.10). This decrease in the value of the correlation from public to private school may be due to the restricted range of both variables.

The reading test scores were not normed separately for boys and girls, and therefore comparison between them is meaningful. Although the findings are not significant on correlations of sex with performance, the direction favors the girls and thus is in accord with the fact that girls perform somewhat better on verbal ability tests.

Being white relates positively to the reading test score (.16), and being Negro relates negatively (−.19).

The relationship between religious preference and reading test scores draws on data in Chapter 7, rather than correlations. We find the 1149 Catholics among the public school students to be approximately equally distributed among the ten deciles; the 2687 Protestants are slightly underrepresented at the lower three deciles, and 17 per cent fall in the top decile of reading test scores; the 199 Jewish students are underrepresented in the four low deciles, and we find 14 per cent and 28 per cent (or over two-fifths) to be in the ninth and tenth deciles, respectively.

Educational Aspirations

An item was included in the questionnaire which asked about the respondents' aspirations: "What is the greatest amount of education you expect to have during your life?" Table B.8 presents the response distributions for level of educational aspiration. The differences obtained be-

TABLE B.8 Educational aspiration. Responses to Item 256:

"What is the greatest amount of education you expect to have during your life?"

Educational Aspiration:	*Secondary School Students*		
	Public %	*Parochial* %	*Private* %
I don't expect to finish high school	1	1	0
I expect to graduate from high school	23	9	1
I expect to obtain vocational, business-school, or junior-college training	25	17	4
I expect to obtain some (less than four years) regular college training	9	10	2
I expect to graduate from a regular four-year college	28	42	43
I expect to study for advanced college degrees	14	22	50
TOTAL	100	101	100
	(5233)	(2613)	(1192)
No Response	(88)	(23)	(6)

tween the three types of schools are quite striking. Twenty-four per cent of the public school students do not expect to progress beyond high school. In the parochial school this figure drops to 10 per cent; and in the private school less than 1 per cent expect to limit their education to a high school diploma. These interschool differences surely reflect in some part differences in measured intelligence, as well as other factors such as father's education and income. The correlations between educational aspiration and the reading test scores were, for the various schools, as follows: public school .45; parochial school .39; and private school .16. Thus, there is, indeed, quite a significant and strong relationship between a person's intelligence and his level of educational aspiration, both in the public and parochial schools. In the private school, this relationship shrinks to nonsignificance which is easily understandable in terms of the highly restricted range on both variables.

We might examine the relationship between these variables in more detail for the public school (which is our national sample). Table B.9 presents this two-way analysis, and shows a strong relationship between intelligence and educational goals. For example, 49 per cent of the respondents who intend to limit their goal to a high school diploma or less, are in the lowest three deciles of the reading test distribution. On the other hand, 61 per cent of those seeking advanced college degrees are, in fact, in the upper three deciles. However, what becomes more evident in this kind of presentation is the fact that there are also 21 per cent of

TABLE B.9 Educational aspiration (Item 256) by reading test score

	Public School Students			
	Educational aspiration:			
Reading Test Score:	*High School Graduate or Less* %	*Some College* %	*College B.A.* %	*Advanced College Degree* %
1st decile	15	7	2	3
2nd decile	17	9	3	4
3rd decile	17	11	6	3
4th decile	14	13	7	5
5th decile	9	15	10	5
6th decile	8	11	9	6
7th decile	10	12	16	12
8th decile	5	8	12	13
9th decile	3	7	14	15
10th decile	3	7	21	33
TOTAL	101	100	100	99
	(1251)	(1799)	(1452)	(704)

the respondents who will settle for a high school diploma or less and who are in the top four deciles of the reading test score distribution, and there are 15 per cent of the respondents who aspire to advanced college degrees who are in the lowest four deciles of the reading test score.

The detailed analysis of the relationship between educational aspiration and social background characteristics is presented in Chapter 8. We will report here only the basic correlational data, as we did for reading test score (Table B.7). As we would expect, level of aspiration and father's education relate positively and quite strongly in the public school (.34) and in the parochial (.30). The smaller relationship in the private school (.10) may be due again to the reduced range of responses on both variables.

There is an interesting relationship between sex and educational aspiration for in the public school this is near zero (−.06), but in the parochial and private schools the correlations are −.32 and −.37, respectively, with males reporting higher levels of aspiration than females. In the private school population, the sex differences are that males aspire to advanced degrees, while females are content with college. In the parochial schools, the differences stem from the lack of female aspiration for college. In the public schools, the reduced sex difference arises from males having lower aspiration and more females aspiring to college. Finally, being Protestant and being Jewish both relate positively (.14 for each) with higher educational aspirations. This reflects class differences, of course, as well as the expected cultural differences between these students of differing religious backgrounds.

PART THREE: PERSONALITY CHARACTERISTICS

In this section we first discuss four dimensions from a factor analysis of 68 items of the questionnaire involving self-descriptions of personality. These dimensions are labeled identity confusion, fatalism, introspective self-concern, and self-confidence. Next we discuss an index of self-esteem, and finally another index which we have called intellectual elitism-equalitarianism. We then deal with the interrelationships among these personality characteristics, and then with the relationships of the personality characteristics to the variables discussed previously, that is, to social background characteristics, reading test scores, and educational aspiration. Each analysis is carried out separately for the three types of schools to see whether the relationships found are constant across school types, or whether school type acts as a moderator variable.

Descriptions of Self: Identity Confusion, Fatalism, Introspective Self-Concern, and Self-Confidence

It seems likely that the adolescent's attitude toward intelligence will be embedded in more general motivational and belief systems characteristic of his personality. To tap these dimensions, a number of items involving self-descriptions of personality were included in the questionnaire. The items were classified on a theoretical basis into those of a more general nature, and those pertaining more directly to attitudes toward intelligence.

The first group consisted of items of the agree-disagree type chosen from a forthcoming study (Goodman, Brim, Kemper, and Cottrell, 1970).[3] In this study 144 items had been selected from personality tests or had been written especially to tap what were believed to be important dimensions of the self-image. The responses to these 144 items were factor analyzed in two separate analyses, one including 114 items, the other the remaining 30 items which at that time were believed to constitute measures of defensiveness and suppression. In each case the items were factored by the centroid method with a Varimax rotation.

In the present study, 70 items[4] were selected from the foregoing group of 144, being those with loadings of .40 or higher on the 13 factors obtained in the two factor analyses. A new factor analysis was then performed on the responses of the secondary school students to 68 of these 70 items, using a centroid method and Varimax rotation to 4

[3] This report describes the sources from which the personality items in the present study were selected.

[4] Two items were eliminated because of their extremely skewed distribution. The items included were questions 77 through 111, and 297–331. Nineteen centroid factors accounted for 36.7 per cent of the total variance; the first 4 factors accounted for 55 per cent of that common variance. Rotated factors accounted for total variance as follows: Factor I, 7.31 per cent; Factor II, 5.07 per cent; Factor III, 3.04 per cent; Factor IV, 4.72 per cent.

factors. For this analysis, a systematic sample of the public school students (that is, every tenth subject) numbering 530 respondents were used. Items with loadings of .30 or more were retained, if they loaded at least .10 less on any of the other factors. For a listing of the items in each factor and their factor loadings, see Table B.10. To simplify communication we have labeled the factors: "identity confusion," "fatalism," "introspective self-concern," and "self-confidence." Let us take a brief look at the four personality characteristics which might be represented by these items.

The first dimension, identity confusion, is similar to the concept advanced by Erikson (1950) and seems to typify the adolescent stage of life as it is commonly viewed in American society. We should note that even though there is this characteristic "confusion," and evident variability in behavior from one role to the next and from one time to the next, there is very little that is defensive or self-protective when one agrees to these items. It may be that such a period of identity confusion, and the willingness to see oneself openly and consciously as being in this state, is a step toward maturity, while those disagreeing with these items may do so because they defend themselves against admission of such confusion in their lives.

Fatalism, a second characteristic, is fairly evident in meaning. The individual scoring high on this dimension describes himself as a person lacking control over his own destiny. The high fatalist can be considered externally oriented (Rotter, Seeman, and Liverant, 1962; Rotter, 1966) in the sense that he denies personal responsibility over the outcomes of his own actions. He sees these outcomes as being determined by fate, chance, or powerful others who are beyond his ability to influence.

The third characteristic, introspective self-concern, is defined by the individual's concentration upon the kind of person he will be in the future. There is also an indication of achievement orientation and self-determination.

The fourth characteristic has been labeled defensive self-confidence. The content of the items may seem to make this dimension self-evident. However, some of the items constituting this factor were taken from well-known existing scales of concealment, impulse control, and defensiveness. It may be that some of the high scorers on this factor are not truly self-confident, with a reasonable basis for this attitude, but instead are highly defensive about their own inadequacies. We have referred to this factor as a dimension of self-esteem, and shall point out the differences in conceptualization between this factor and the index of self-esteem which we have constructed, when we discuss the relationship between these two dimensions.

Factor scores were constructed for each of the 4 factors by summing the responses to each item and dividing by the total number of items in

TABLE B.10 Items and factor loadings of self-image factors

	Factor Loading
Identity Confusion Factor Score	
I find that on one day I have one opinion of myself, and on another day I have a different opinion.	.57
I'm a very different person from one situation to the next.	.49
There are many times when I don't know how I should behave.	.48
I certainly feel useless at times.	.47
I often find myself in situations where I have to do things I don't want to do.	.46
I often think that I'm different from other people.	.45
My opinion of myself tends to change a great deal.	.45
I act differently in the presence of other people.	.43
I find it hard to concentrate on my work.	.43
I am a person who lives very much in imagination.	.43
I have noticed that my ideas about myself seem to change very quickly.	.42
I am not the person I pretend to be.	.42
There are lots of things about myself that I'd change if I could.	.42
I'm really quite different from what other people think.	.39
I often find myself day dreaming at my desk when there's work to be done.	.35
I am a many-sided person.	.31
Some of my friends think that my ideas are impractical if not a bit wild.	−.34*
Most people must think of me as a very changeable person.	−.43*
Fatalism Factor Score	
My existence is completely under the control of destiny.	.68
The success I'm going to have was already in the cards when I was born, so I might as well accept it and not fight against it.	.62
I have complete trust in destiny which keeps me from worrying.	.58
There's no sense in taking a chance failing at something new when I'm doing all right as I am.	.48
Fate determines what happens to me.	.44
I feel that nothing or almost nothing can change the opinion I currently hold of myself.	.35
Every human problem can be solved and every desire satisfied.	−.36*
Let us eat, drink, and be merry for tomorrow we die.	−.40*

TABLE B.10 (*Continued*)

	Factor Loading
Introspective Self-Concern Factor Score	
I spend a lot of time thinking about what I am going to be.	.45
I spend a great deal of time thinking about what kind of person I am.	.43
Usually my mistakes don't bother me for very long.	.35*
I make strong demands on myself.	.33
The most important things that happen to me are usually a result of my own efforts.	.32
Defensive Self-Confidence Factor Score	
Most people I know think highly of me.	.45
On the whole I'm satisfied with myself.	.44
I take a positive attitude toward myself.	.41
I seldom have any doubts about my abilities; I know my strengths and I know my weaknesses.	.41
By and large, the good things in me outweigh the bad.	.38
I'm pretty sure of myself.	.37
Even as a child I was quite calm.	.32
I kick myself for the things I do.	−.37**
Things are all mixed up in my life.	−.55**

* Item keyed "false."
** Item keyed "true."

the factor.[5] Thus, the range of scores for each factor went from 1.0 (a low score) to 4.0 (a high score). Grouped frequency distributions of the factor scores for each of the three types of schools are presented in Tables B.11–B.14.

No major differences between schools appear for identity confusion, but there are visible differences in the distribution of fatalism scores. The public school students have the highest fatalism scores; the parochial school respondents take a middle position and the private school group have the lowest scores. This ordering is the same as that for the socioeconomic characteristics of the schools. Later in this section we show that fatalism has a small negative correlation to father's education (−.17).

There are no substantial differences in the factor of introspective self-concern nor are there any on the last factor, defensive self-confidence. The latter seems a surprising negative finding, on first thought, and we might expect the abler, more well-to-do respondents generally making up the private school group to be more self-confident. However, we reiterate that some of the high scoring students on this factor may be defensive about their own inadequacies and this could well be sufficient to cancel the positive aspects of self-confidence here.

[5] In the case of missing responses the divisor was the number of items the subject had responded to.

TABLE B.11 Distribution of scores on identity confusion factor

Identity Confusion Factor Score	*Secondary School Students*		
	Public %	*Parochial* %	*Private* %
3.8–4.0	0	0	0
3.6–3.7	0	0	0
3.4–3.5	1	1	0
3.2–3.3	2	2	2
3.0–3.1	7	5	7
2.8–2.9	11	9	10
2.6–2.7	24	20	21
2.4–2.5	21	21	22
2.2–2.3	21	23	22
2.0–2.1	11	14	13
1.8–1.9	2	3	2
1.6–1.7	1	1	1
1.4–1.5	0	1	0
1.2–1.3	0	0	0
1.0–1.1	0	0	0
	101	100	100
TOTAL	(5293)	(2626)	(1190)
No Response	(2)	(1)	(0)

TABLE B.12 Distribution of scores on fatalism factor

Fatalism Factor Score	*Secondary School Students*		
	Public %	*Parochial* %	*Private* %
3.8–4.0	0	0	0
3.6–3.7	0	0	0
3.4–3.5	0	0	0
3.2–3.3	1	1	0
3.0–3.1	3	2	1
2.8–2.9	3	2	0
2.6–2.7	11	6	2
2.4–2.5	9	6	3
2.2–2.3	24	17	11
2.0–2.1	22	26	23
1.8–1.9	8	10	12
1.6–1.7	10	16	19
1.4–1.5	4	6	11
1.2–1.3	4	8	14
1.0–1.1	1	2	4
	100	102	100
TOTAL	(5293)	(2626)	(1190)
No Response	(2)	(1)	(0)

TABLE B.13 Distribution of scores on introspective self-concern factor

Introspective Self-Concern Factor Score	*Secondary School Students*		
	Public %	*Parochial* %	*Private* %
3.8–4.0	1	1	1
3.6–3.7	2	2	1
3.4–3.5	4	3	3
3.2–3.3	6	7	9
3.0–3.1	15	14	13
2.8–2.9	19	18	18
2.6–2.7	21	22	24
2.4–2.5	17	18	16
2.2–2.3	10	10	10
2.0–2.1	4	4	5
1.8–1.9	1	1	0
1.6–1.7	0	0	0
1.4–1.5	0	0	0
1.2–1.3	0	0	0
1.0–1.1	0	0	0
	100	100	100
TOTAL	(5293)	(2626)	(1190)
No Response	(5)	(2)	(1)

TABLE B.14 Distribution of scores on defensive self-confidence factor

Self-Confidence Factor Score	*Secondary School Students*		
	Public %	*Parochial* %	*Private* %
3.8–4.0	0	0	0
3.6–3.7	1	0	1
3.4–3.5	2	2	2
3.2–3.3	5	6	6
3.0–3.1	18	16	16
2.8–2.9	15	16	12
2.6–2.7	26	26	25
2.4–2.5	17	18	19
2.2–2.3	9	10	12
2.0–2.1	4	4	6
1.8–1.9	1	1	1
1.6–1.7	1	1	1
1.4–1.5	0	0	0
1.2–1.3	0	0	0
1.0–1.1	0	0	0
	99	100	101
TOTAL	(5293)	(2626)	(1190)
No Response	(2)	(2)	(0)

Self-Esteem

Self-esteem refers to the evaluative attitude a person holds toward the self. It is a relative measure, in that it reflects the person's estimate of his standing on a number of dimensions in respect to relevant others. Respondents were asked to compare themselves with all students in their grade on each one of the following dimensions: health, intelligence, school marks, popularity, prestige in school, drive to get ahead, creativity and imagination, physical attractiveness and athletic ability. Each item was checked on a five-point scale, ranging, from "much below average" (1) to "much above average" (5). Responses to eight of the nine items were summed to obtain the index of self-esteem, which thus ranged from a low of 8 to a high score of 40. The "intelligence" item was omitted to reduce redundancy when using this index against measures of intelligence. Frequency distributions of the self-esteem index for the three types of schools are presented in Table B.15. In general, the data seem to reflect "normal" distributions. Very few respondents seem to feel that they are much above average on all eight dimensions, or that they are much below on all of them. The distribution in the public school is nearly identical to that in the parochial school. The private school students do indicate a higher degree of self-esteem. This difference, while not overwhelming, is the more significant for the following reasons. Respondents compared themselves with students in their own school. Thus, these comparisons are within type of school comparisons, and we have therefore a self-esteem index that is based on three different reference groups.

TABLE B.15 Distribution of scores on self-esteem index

Self-Esteem Index Score	*Secondary School Students*		
	Public %	*Parochial* %	*Private* %
3.9–4.0 "High"	0	0	1
3.7–3.8	0	0	1
3.5–3.6	2	1	3
3.3–3.4	4	3	8
3.1–3.2	7	8	13
2.9–3.0	12	13	17
2.7–2.8	19	21	20
2.5–2.6	22	25	18
2.3–2.4	19	19	11
2.1–2.2	9	8	5
1.9–2.0	3	2	2
1.7–1.8	1	0	1
1.5–1.6	0	0	0
1.3–1.4	0	0	0
1.1–1.2	0	0	0
.8–1.0 "Low"	0	0	0
	98	100	100
TOTAL	(5304)	(2626)	(1194)
No Response	(17)	(10)	(4)

Intellectual Elitism-Equalitarianism

We noted in the Introduction that one may believe that open competition between different types and levels of ability is a social good and that each individual has a right to achieve in society as much as he is able, and according to his talents. In contrast is an equalitarian point of view, in which men are viewed as equal and individual differences in characteristics such as intelligence are minimized by differential treatment to bring everybody to the same position and opportunity in society. In this society a doctrine of opening avenues of achievement according to intelligence is a direct challenge to these values.

A group of items in the questionnaire was written especially to tap these attitudes toward differences in intelligence, and the way in which society may use such differences as a basis for allocating rewards or opportunities (Items 260 through 296). Twelve of the items were chosen to construct an index that would represent the values of equalitarianism on the one extreme, and intellectual elitism on the other extreme. Table B.16 lists first the seven items which represent the elite-oriented outlook, and which were scored positively. Then, five items follow that represent the equalitarian-oriented view, and that were similarly scored positively.

TABLE B.16 Items comprising the index of intellectual elitism-equalitarianism

Elite-Oriented

(275) The ideal society would be made up entirely of very intelligent people.
(283) It is only fair that the people with the most intelligence should have the most opportunities.
(296) Children who are intelligent should get better schooling and not have to stick with the average child.
(289) The great things accomplished by men are really the works of just a few geniuses.
(295) No amount of education or special training can make up for a lack of natural intelligence.
(277) A person who isn't very intelligent should not attempt things beyond his ability.
(264) Something should be done to keep feeble-minded people from having children.

Equalitarian-Oriented

(265) A child who is less intelligent should get more attention from his teachers than a child who is very bright.
(267) If all of us were given an equal chance, we would all be equally intelligent.
(278) There is no difference in intelligence between racial, religious, or nationality groups.
(262) Everyone should have a chance to go to college if he wants to.
(273) Everyone should be able to take any high school course that he wants to even though his score on an intelligence test indicates that he may not succeed in it.

Responses to each item were made on a 5-point scale ranging from "strongly agree" (5) to "strongly disagree" (1). Students failing to respond to any of the 12 items were discarded from the sample. Total scores for each respondent were obtained by subtracting their equalitarian item score from their elitist item score. The possible range of the index thus goes from a high elitism score of +30 to a high equalitarianism score of −18.

There is little doubt that the seven items making up the elitism end of the dimension are strongly oriented toward the value of intelligence and its use to further the interests of both the individual and society. There is also the implication that intelligence is a genetic factor which makes some people "less equal" than others. The equalitarian items stress equality of opportunity rather than intellectual endowment and are clearly in the direction of smoothing out differences rather than highlighting and developing them.

Frequency distributions of the intellectual elitism-equalitarianism index are presented in Table B.17. Respondents distribute themselves fairly normally on this index, in all three types of schools. About a quarter to a third of the respondents exhibit either an elitism or an equalitarian outlook, in each school, with the balance occupying a middle position. There are, however, some slight school differences. The parochial school tends to have the highest proportion of elitist respondents (33 per cent), compared to the public (29 per cent) and the private (28 per cent) school. Correspondingly, the parochial school also shows the lowest proportion of equalitarian respondents (23 per cent), while the

TABLE B.17 Percentage distribution of intellectual elitism-equalitarianism index

Scale Value	*Secondary School Students*		
	Public %	*Parochial* %	*Private* %
Elitist			
30 to + 15	0	1	0
14 to + 10	4	4	5
9 to + 5	25	28	23
Intermediate			
4 to − 0	45	44	40
Equalitarian			
− 1 to − 5	22	20	25
− 6 to − 10	4	3	6
− 11 to − 18	0	0	1
	100	100	100
TOTAL	(4948)	(2513)	(1143)
No Response	(373)	(123)	(55)

public school is slightly higher (26 per cent), and the private school the highest (32 per cent).

The Interrelationship of the Personality Characteristics

To the degree that personality characteristics are related to each other, their effects on dependent measures may be confounded. A knowledge of these relationships will enable us to judge when controls will be needed in analyses or when we might prefer to speak of the effect of a syndrome of personality variables rather than of that of a single one. Table B.18 presents the intercorrelations among the six personality dimensions discussed.

Let us first consider the relationship between the four factors. It is evident that these factors are not entirely independent of each other.

TABLE B.18 Intercorrelations among personality variables

	Secondary School Students					
	(*a*)	(*b*)	(*c*)	(*d*)	(*e*)	(*f*)
	*Public Schools (N = 930)**					
(a) Identity Confusion	—	.18*	.22*	−.41*	−.14*	.08
(b) Fatalism		—	−.06	.04	−.19*	.16*
(c) Introspective Self-Concern			—	−.11*	.20*	.03
(d) Defensive Self-Confidence				—	.31*	−.03
(e) Self-Esteem					—	.04
(f) Intellectual Elitism-Equalitarianism						—
	*Parochial Schools (N = 520)**					
(a) Identity Confusion	—	.10	.20*	−.56*	−.20*	.00
(b) Fatalism		—	−.07	.11	−.08	.22*
(c) Introspective Self-Concern			—	−.16*	.14*	−.10*
(d) Defensive Self-Confidence				—	.31*	.07
(e) Self-Esteem					—	.09
(f) Intellectual Elitism-Equalitarianism						—
	*Private Schools (N = 230)**					
(a) Identity Confusion	—	.01	.08	−.49*	−.12	.04
(b) Fatalism		—	−.15	.07	−.07	.09
(c) Introspective Self-Concern			—	−.06	.15	−.06
(d) Defensive Self-Confidence				—	.43*	.03
(e) Self-Esteem					—	.03
(f) Intellectual Elitism-Equalitarianism						—

* The total number of cases varies slightly within each school type because of a number of no responses. Respective levels of significance are as follows: $r = .09$ with 930 d.f., $r = .12$ with 520 d.f., $r = .18$ with 230 d.f., $p < .01$.

Identity confusion is positively related to introspective self-concern, both in the public and private schools, and also to fatalism in the public schools. Identity confusion is negatively related to the characteristic of defensive self-confidence, with the relationship being numerically quite strong in all three types of schools. Although we will not attempt descriptions of the possible underlying dimensions in these relationships, this one seems especially worth noting. It is understandable that those who feel confused may not feel self-confident; note, however, that the source of this relationship may be more subtle. As we suggested before, some among the adolescent population may feel identity confusion and deny it with bravado, thus emerging with high scores on the self-confidence factor.

Relationships between these factors and scores on the intellectual elitism-equalitarianism index show fatalism to be positively related with elitism both in the public (.16) and parochial school (.22). In the private school the direction of the relationship is the same, but it does not reach significance. It may well be that this relationship is tied to a dependency component of the fatalistic attitude; the feeling of lack of autonomy or control, of acquiescence to outside forces as represented in fatalism may express itself in the political sphere in a desire for a society where responsibility is left to the more able and powerful.

We had promised previously to investigate the relationship between the self-confidence factor and the self-esteem index. As we had expected, the relationship is positive in all three schools, yet low enough to indicate that we are dealing with two quite distinct dimensions of the self. We may suggest that the difference between the two dimensions is one of veridicality. The self-esteem index is based on comparisons with others on a series of quite concrete items. The result might be a relatively objective and valid index. To score high on the defensive self-confidence factor means to make a series of declarations of how self-confident one is, or maybe, would like to be. It appears that this latter index is more likely to have defensive elements included.

Let us briefly mention other significant relationships. Self-esteem relates positively to introspective self-concern in the public school (.20) and the parochial school (.14). It relates negatively to identity confusion, both in the public school (−.14) and the parochial school (−.20), and it also relates negatively to fatalism in the public school (−.19). The order of these correlations, however, is such as to make attempts at explanation mere speculations; thus, they are not even attempted.

The Interrelationship of Personality Characteristics and Social Background Characteristics

We turn next to the relationship of the personality characteristics and social background variables. Do we find certain traits, beliefs, or

attitudes more prevalent in one section of our population than another? Do males and females differ in respect to the personality characteristics investigated?

The method adopted to investigate these relationships is again a correlation procedure (Table B.19). As an overall and quite general statement we might say that the correlations obtained are low. Thus, in no one case would we be justified to ascribe a person a particular personality characteristic on the basis of a knowledge of his background characteristics. Nevertheless, in dealing with a substantial number of persons we could make certain generalized statements about a greater likelihood of finding certain characteristics among one group rather than another. We note only those relationships that have a probability level of $p<.01$.

Turning first to the four factors relating to the respondent's self-image, we find that "identity confusion" relates significantly only to one background variable, namely, age. The older student tends to be somewhat lower on this dimension, significantly so in the public (−.13) and parochial school (−.19), nonsignificantly so in the private school (−.14). We might be willing to interpret this as positive evidence that the students, in fact, are growing up and are developing a stronger identity.

The next factor, fatalism, shows a number of significant relationships to background characteristics of the respondent. It seems quite evident that fatalism is part of a broader syndrome of characteristics which relate to many facets of the respondent's life experience. In the next section, we shall further see that fatalism is quite strongly negatively related to intelligence, as measured by the reading test. It is not surprising, then, to find that fatalism also relates negatively to social class, as measured by father's education. This relationship is significant in the public school (−.17) and parochial school (−.12), and tends in the same direction in the private school (−.09). (The restriction of range on both variables in the latter school would make it difficult to obtain a sizable correlation.) Thus, we should keep in mind that we may expect students whose fathers are limited in their educational qualifications, to be somewhat higher in fatalism, although we must stress again that the relationship is by no means a certain one.

A somewhat puzzling finding is the fact that in the private school, and in the private school only, males tend to be somewhat higher in fatalism than females (−.19). We have no ready explanation for this phenomenon.

Age shows a slight and negative relationship to fatalism, significantly so in the public school (−.12), and only as a trend in the parochial and private school. This trend may tie in with growing up (see the findings in regard to identity confusion) and a growth in the autonomy of the student.

TABLE B.19 The interrelationship of personality variables and social background variables

	Secondary School Students							
	Father's Education	*Sex*	*Age*	*White*	*Negro*	*Protestant*	*Catholic*	*Jewish*
				Public Schools				
Identity Confusion	−.05	−.01	−.13*	−.00	.02	−.05	−.01	−.08
Fatalism	−.17*	−.07	−.12*	−.15*	.18*	−.18*	−.03	−.05
Introspective Self-Concern	−.03	.14*	.05	−.06	.10*	.03	−.02	−.02
Defensive Self-Confidence	.03	−.10*	.02	−.10*	.12*	−.08	.03	.05
Self-Esteem	.19*	.00	.14*	−.05	.04	.06	−.04	.11*
Intellectual Elitism-Equalitarianism	−.03	−.11*	−.00	−.08	.07	−.01	−.11*	−.00
				Parochial Schools				
Identity Confusion	−.07	−.01	−.19*	.03	.02			
Fatalism	−.12*	−.01	−.09	−.12*	.22*			
Introspective Self-Concern	.03	.09	.01	−.04	.04			
Defensive Self-Confidence	.00	−.14*	.10	−.09	.11			
Self-Esteem	.04	−.17*	.03	.03	−.00			
Intellectual Elitism-Equalitarianism	.11	−.15*	.05	−.04	.03			
				Private Schools				
Identity Confusion	.14	−.01	−.14			.05	−.09	−.10
Fatalism	−.09	−.19*	−.11			−.14	.08	−.02
Introspective Self-Concern	−.05	.06	.02			.06	.07	−.05
Defensive Self-Confidence	−.06	−.16	.08			.04	.04	−.04
Self-Esteem	.02	−.13	.11			−.00	.03	−.02
Intellectual Elitism	−.01	−.20*	.06			−.02	−.12	.05

* See Table B.18.

Both in the public and parochial schools the relationship between fatalism and race is quite clear. Being white relates negatively (−.15 and −.12, respectively); and being Negro positively (.18 and .22, respectively). Thus, fatalism is certainly a dimension to consider whenever we shall be dealing with an interpretation of Negro-white differences.

For public school students being Protestant relates negatively to fatalism (−.18), while being either Catholic or Jewish results in a near zero relationship. The same trend obtains in the private school, but is nonsignificant.

The next factor, introspective self-concern, seems relatively independent of social background factors, with two exceptions. In the public school, females are somewhat more likely to be high on this dimension than males (.14). The same trend obtains nonsignificantly in the parochial and private schools. We also find, in the public school, a slight tendency on the part of the Negro to be higher on this dimension (.10). Thus, while we might ascribe the sex differences to a playing out of the feminine role which calls for a certain amount of introspection, in the case of the race differences we might prefer to regard the results as the respondent's actual greater concern with his future. These are, of course, strictly speculations.

There is a negative relationship between defensive self-confidence and being female. Here the relationship is significant in the public school (−.10) and parochial school (−.14) and nearly reaches significance in the private school (−.16). Defensive self-confidence also relates in a rather interesting way to race. Being white is negatively related to defensive self-confidence (−.10), while being Negro is positively related (.12). The same trend obtains nonsignificantly in the parochial school. It gives support for a picture of lack of realism and some defensiveness, and this is especially significant here because we find race to be unrelated to the presumably less defensive self-esteem variable. This finding, which runs somewhat contrary to what one would expect from a realistic evaluation of the social scene, is found in several chapters analyzing similar variables (for example, level of aspiration) and has also been noted by other researchers.

If we accept the theory that self-esteem is a function of how others perceive the person, it is not surprising to find that self-esteem relates positively to father's education (.19). This relationship, however, holds only in the public school; there are near zero correlations in both the parochial and private schools.

Sex shows a significant relationship to self-esteem only in the parochial school (−.17). Females tend to be lower in self-esteem than males. There is a trend in that direction in the private school, and a zero correlation in the public school. Again, we may only speculate on the

possibility that in the parochial school the role of the "humble" female is emphasized in contrast to the other types of school.

We might also mention the slight positive relationship between age and self-esteem, in the public school (.14), and a tendency in that direction in the private school. Again, we might consider this to be part of a growing-up process. (There is a near zero relationship between age and self-esteem in the parochial school, a fact we might want to remember for much later considerations of self-estimates of intelligence.)

To complete the elaboration of significant relationships we should mention that being Jewish is related to high self-esteem in the public school (.11). No such relationship holds in the private school.

Turning now to our last personality variable, intellectual elitism-equalitarianism, we note one fairly consistent relationship. Females are more likely to be equalitarian than males. This trend is significant in all three schools (−.11, −.15, and −.20, respectively). The association between female and equalitarianism seems reasonable, especially in view of the content of some of the items (see Table B.16), namely, #265 with its implication of nurturance, and #262 and #273 which promote freedom of choice in the educational sphere. Many girls perhaps resent being typecast into home economic or basket-weaving type courses and also being denied college education in preference to their male sibs. Strong agreement with these items would tend to make them equalitarians.

The only other significant relationship between intellectual elitism-equalitarianism and social background variables involves Catholicism. We find, in the public school, that Catholics tend to be higher in equalitarianism than non-Catholics, that is, tend to be higher on the elitism scale. The association between being Catholic and being equalitarian is not obvious. The correlations are small and would not be of any importance except when we recall that there is a school difference that we noted earlier, also small, but going in the opposite direction, namely, the parochial school students as a whole were the most elite-oriented. Perhaps something about the parochial school environment pushes the Catholic students in the other direction.

Relationships of Personality Characteristics to Reading Test Scores and Educational Aspiration

The final task is to relate personality characteristics to reading test scores and educational aspiration. The personality characteristic, identity confusion, relates significantly to educational aspiration in the public school (Table B.20). The more confused the respondent, the lower tends to be his educational goals (−.12). This is a good place to repeat the statement that these correlations do not necessarily imply causal relationship, and even if they do, the direction of the causation may be problematic.

TABLE B.20 The interrelationship of personality variables and reading test, level of aspiration

	Secondary School Students	
	Reading Test	*Level of Aspiration*
	Public Schools	
Identity Confusion	−.05	−.12*
Fatalism	−.49*	−.33*
Introspective Self-Concern	.02	.11*
Defensive Self-Confidence	−.04	.07
Self-Esteem	.20*	.34*
Intellectual Elitism-Equalitarianism	−.16*	−.04*
	Parochial Schools	
Identity Confusion	.02	−.02
Fatalism	−.32*	−.24*
Introspective Self-Concern	.05	.10
Defensive Self-Confidence	−.06	.04
Self-Esteem	−.06	.04
Intellectual Elitism-Equalitarianism	−.07	−.01
	Private Schools	
Identity Confusion	.16	−.02
Fatalism	−.11	−.11
Introspective Self-Concern	−.05	.05
Defensive Self-Confidence	−.14	.07
Self-Esteem	−.10	.18*
Intellectual Elitism-Equalitarianism	.12	.15

* Significant at the .01 level.

There is quite a strong relationship between fatalism and the variables presently investigated. Thus, fatalism relates negatively to the reading test, strong and significantly in the public (−.49) and parochial school (−.32), and shows a trend in the same direction in the private school (−.11) in spite of the restrictions in the latter school on both variables concerned. The relationship of fatalism to level of educational aspiration is similar to that of the reading test; significant, strong, negative relationships in the public (−.33) and parochial school (−.24), and a trend in the same direction in the private school (−.11).

The dimension of fatalism thus characterizes those students of lower educational background, lower measured intelligence and lower educational aspiration. These relationships have occurred in most other similar analyses; for example, see materials summarized in Brim, Glass, Lavin, and Goodman (1962). The child-rearing patterns of parents of less well-educated background, and likely of less ability, as well as the realistic life conditions of the child growing up in lower-class families are such as to inhibit the development of a sense of competence or mastery and to yield a fatalism orientation toward life.

Introspective self-concern, in the public school, relates significantly to level of educational aspiration (.11). Respondents high on this dimen-

sion tend to set themselves higher educational goals. A trend in the same direction is evident in the parochial schools.

We find no significant relationship between reading test scores and the characteristic of defensive self-confidence. Once again, a naive reading of the defensive self-confidence factor would lead one to expect a positive relationship between intelligence and confidence. Its absence here suggests again the confounding of the confidence variable with defensiveness.

In contrast to the just-mentioned zero or possibly negative relationship between defensive self-confidence and reading test, we find a significant positive relationship between self-esteem and reading test scores in the public school (.20). We also find that self-esteem is positively related to level of educational aspiration in all three types of school (.34, .28, and .18, respectively). This, of course, is what we would expect. The person who thinks highly of himself will tend to set himself equivalently high goals in his educational aspiration.

Last, one notes that elitist attitudes are not positively related to educational aspiration or reading test scores, as one might expect; indeed, the correlation is significantly negative in the public schools. Being a member of an elite group among students (in the sense of intelligence) does not predispose one toward elitist values, evidently; academic elitism is not the same as ideational elitism. Elsewhere we see differences in beliefs and attitudes between academic achievement and success in later life, similar to the distinction noted here.

APPENDIX C

Comparison of American Adults with Secondary School Students

THIS APPENDIX provides a description of the beliefs and attitudes of American adults regarding standardized intelligence tests, presenting comparisons of our findings to those for secondary school students presented in the preceding chapters. The data on adult attitudes are the result of a nationwide survey that the National Opinion Research Center conducted for Russell Sage Foundation in 1963. A detailed report on this study has already been published (Brim, Neulinger, and Glass, 1965).

In the adult survey the objective was to have a sample representative of the total noninstitutionalized population of the United States, 21 years of age or older. The sampling procedure used was designed by the National Opinion Research Center, which directed all phases of the field operation. The sample was a standard multi-stage area probability sample to the block level. Probabilities of selection were made proportionate to the estimated 1953 population, updated to include the 1960 Census and extrapolated to the expected 1967 population. At the block level, quota sampling procedures were employed, quotas being based on sex, age, race, and employment status (that is, whether potential respondents were employed or unemployed).

The description of the adult sample will be somewhat simplified because we are dealing with only one group, rather than with three as in the secondary school sample. The indicator of social class most comparable to the father's education measure used in the secondary school study is

the respondent's report of his own educational attainment. We find that about 10 per cent of the respondents reported at least some grade school (6 years or less). Thirty-seven per cent reported having attended some high school (7 to 11 years), and 29 per cent said they had graduated from high school (12 years). Fourteen per cent reported some college education (13 to 15 years); 6 per cent listed themselves as college students (16 years), and 4 per cent as having some graduate training (17 years or more). These data agree quite closely with the distribution of paternal educational attainment obtained in the public secondary schools; thus, we may consider the social class levels in the adult sample as generally comparable to that of the public school students.

Of the 1,482 respondents, 48 per cent were males and 52 per cent females. The age distribution of the respondents was as follows: 0.3 per cent were under 20, 23 per cent were between the ages of 21 and 30, 26 per cent between 31 and 40, 19 per cent between 41 and 50, and 17 per cent were over 61. For the purpose of age comparisons across populations we shall treat the secondary school students as a single age category, that is, below 20.

Eighty-six per cent of the respondents were white and 13 per cent were Negro. This represents a slight overrepresentation of Negroes (by about 2 per cent), which may be accounted for by the slightly greater representation of urban areas in the sample.

The predominant religious preference was Protestant (72 per cent), with Catholic (24 per cent) second, and Jewish (2 per cent) third.

In this Appendix the data on the adults' attitudes are organized and presented in accord with the themes of the chapters of this volume. There are data from the adult study relevant to the issues discussed in all but Chapters 6, 8, and 10 of the student survey. Thus, we are able to report information on adult attitudes bearing respectively on: beliefs about the origins and stability of intelligence; the importance of tested intelligence; experiences with tests; beliefs about the accuracy of tests; self-estimates of intelligence; reports of test result feedback; perceived consequences of testing; and finally, attitudes toward the fairness of using standardized intelligence tests.

With reference to each chapter the comparable data may include findings that are similar to those reported for the secondary school students, or those that are different. An important component of a different finding, in addition to those few instances where the directions of relationships are actually reversed, are those instances where one study reports positive findings for a relationship and the other study presents no relationship. In those cases where the findings differ, we must look carefully to see whether the difference might arise from slight changes in wording of the questions. In those other instances in which there are direct comparable items and for which the populations in the two surveys gave differ-

ent responses, the task is to judge, insofar as possible, whether the differences are related to the differences in age, or reflect historical changes, or both.

In the survey of adult opinions, the data were gathered through personal interviews at the respondent's home. This contrasts with the impersonal anonymous questionnaire approach for the secondary school students. Some of the questions included in the adult survey may be such that inhibition in this face-to-face interview, by the adult respondent, would lead to answers other than those he might have given in a self-administered anonymous questionnaire. The rate of "No Opinion" responses, for example, obtained with the interviews is markedly lower than the rate obtained with the student questionnaire. Thus, we want to attend to possible differences in responses caused by differences in methods of getting the answers.

BELIEFS ABOUT THE ORIGINS AND STABILITY OF INTELLIGENCE

Information on adults' opinions about the origins of tested intelligence was derived from the same question used in the student survey. (See Chapter 2.) The minor difference was that a response alternative provided to the students—"tests do not measure intelligence"—was not made available to adults.

The distribution of adult opinion on this topic shows a relatively greater emphasis on the contribution of inborn abilities as determinants of the quality of intelligence test performance than was the case among public secondary school students. Twenty-seven per cent of the adult group feel intelligence tests measure abilities that are "only inborn" or "mostly inborn" in nature, and an equal proportion feel that inborn abilities and learned knowledge contribute equally to test performance. Only 46 per cent of the adult respondents, compared to 61 per cent of those in the public school sample, feel that the tests measure abilities that are primarily learned in origin. This difference is largely a historical one. There is a strong relationship between age and opinion on the origin of intelligence, with older respondents minimizing the contribution of learning.

Social Class

The relationship between educational attainments of adult respondents and their beliefs about the origins of tested intelligence is significant beyond the .05 level of confidence. The form of this relationship (Table C.1) is curvilinear: respondents at the highest and lowest levels of educational attainment stress inborn, as opposed to learned, determinants; the latter are emphasized by those at intermediate levels. Also, the pro-

TABLE C.1 Adult respondents' attitudes toward their own intelligence in comparison to that of their relatives

Comparison Persons:	*Higher in Intelligence* %	*Same in Intelligence* %	*Lower in Intelligence* %	*Total* % (*f*)
Respondents				
Father	36	47	17	100 (1393)
Mother	40	47	14	100 (1412)
Brother(s)	21	64	15	100 (1126)
Sister(s)	21	68	11	100 (1124)
Wife-Husband	19	56	25	100 (1334)
Children	26	39	35	100 (1126)

portion of adults who give equal weight to both inborn and learned determinants tends to increase with educational level.

These results are difficult to interpret. The major conflict with the student data concerns the popularity of inborn orientation toward the origins of intelligence among adults at the lowest educational level (30 per cent) compared to the relative unpopularity of this view among public school students whose fathers have equivalent educational backgrounds (15 per cent). In part, this discrepancy can again be interpreted in terms of age differences. Older respondents are overrepresented at the lowest educational level and, as we have indicated, it is these respondents who place greatest emphasis on the importance of inborn abilities.

Sex

There were no significant associations between respondents' sex and beliefs about the origins of intelligence observed in the student data. For the adults, however, the association is a significant one ($p<.01$). Males place greater emphasis on the contribution of learned knowledge, while female respondents more frequently indicate that both learning and inborn ability are of equal importance. One rather speculative interpretation of the difference, and also of the discrepancy between the adult and student findings, lies in the influence of the occupational role on adults' beliefs. What we are suggesting is that the males, through their work experiences, may more frequently come into contact with demands for skills that clearly require learning. Male adults may come to view intelligence more in terms of learning as a consequence of these experiences, while the lesser involvement in work at the high school level could account for the absence of sex differences in belief among the students.

Age

Respondents' age, as we indicated above, is strongly related to beliefs about the origins of tested intelligence. The opinion distribution

for the youngest group of adults, those 21 to 30 years of age, is most similar to that found in the public school sample. The majority of young adults (55 per cent) believe that tests measure knowledge that one has learned, while relatively few (22 per cent) believe that they measure primarily inborn abilities. Among the oldest group of respondents, those 51 years of age or older, many fewer adults attribute importance to the contribution of learned knowledge (37 per cent) while a relatively larger proportion indicate that inborn abilities determine intelligence test performance (33 per cent).

Several interpretations of this strong relationship can be suggested. In regard to age it may be that the passing years and the concomitant stasis in employment or social position that this brings for many may tend to impress the idea of the stability of differences between men in regard to abilities which could lead to the inference that intelligence is largely inborn in nature. On the other hand, this relationship can also be seen as reflecting the effect of a historical change. We know that the view of intelligence tests as measures of an inherited and unalterable capacity is now way past the zenith of popular acceptance among psychologists and educators that it enjoyed in the late nineteen-thirties (Hunt, 1961). It is quite possible that the older respondents may have absorbed more of this ideology during and after their school years. In contrast to this, the youngest respondents may well have been influenced by the more recent criticisms of tests—that they do not measure innate differences in intelligence, that they are susceptible to and, indeed, may even strongly reflect differing cultural background experiences—which could easily lead to the inference that intelligence tests measure little more than what one has learned.

Race and Religion

The relationships of adult race and religious affiliation to beliefs about the origins of intelligence are similar to those observed for the public school students. More Negro than white adults (37 vs. 26 per cent) believe the tests to be measures of inborn ability. More Jewish adults were of this opinion (45 per cent) than either Protestant (27 per cent) or Catholic (28 per cent) adults. The overall difference between the distribution of Negro and white opinion was significant beyond the .01 level of confidence, while the large difference associated with religion fails to attain the .05 level because of the small number of Jewish respondents included in the adult sample (N=31).

The Stability of Intelligence

We have no information about adult respondents' attitudes toward the stability of test results or of their own intelligence test scores over the

short term. The results for comparisons in intelligence made over the long term, on the time scale of differences between the generations both echo and amplify what we have learned from the students. From these data we know that the majority of student respondents consider themselves as being less intelligent than are their fathers at the present time. When asked to project into the future and compare intelligence with their fathers ten years hence, we found that students tend to think they will be more intelligent than their fathers will be at this time. (This is, of course, consistent with the observation that students are much more likely to say that their own intelligence test scores have improved than they are to say that they have declined).

Information on adults' views about the stability of intelligence across generations was obtained through the question: "How do you think you compare with other people in intelligence?" The five-point scale, with alternatives ranging from "much lower in intelligence" to "much higher in intelligence" provided as replies to this question, has been collapsed to three points in its presentation on page 252 as Table C.1. The majority of respondents view themselves as being equal in intelligence to comparison persons of equivalent age (for example, brothers, sisters, and wives or husbands). It is interesting to note, however, that only one adult in five feels that he is more intelligent than his age co-equals. This proportion is much lower than that observed in the student data—almost half of the public school respondents describe themselves as being above the average intelligence level of high school students in the United States. It seems evident that variations in the wording and format between the adult and student items can account for this discrepancy. The adult's assertion that he is "the same in intelligence" as someone else has none of the normative implications presented by the "above average, . . . below average" dimension given to the students.

Turning now to comparisons in intelligence across generations, we see that approximately two-fifths of the adult respondents claim to be more intelligent than their parents. The proportion of adults indicating higher intelligence in comparison with the older generation is thus twice that given for same generation comparisons. On the other hand, a rather small proportion of adults (about 15 per cent on the average, comparisons with one's spouse excluded) view themselves as less intelligent than either their parents or their age co-equals. The most striking contrast for this end of the dimension occurs for adults' intelligence comparisons with their own children: More than one-third of the parents (35 per cent) see themselves as being less intelligent. The pattern of these responses presents a trend toward increasing intelligence across the generations. The tendency is for adults to describe themselves as more intelligent than their parents but less intelligent than their children.

THE IMPORTANCE OF TESTED INTELLIGENCE

General Findings

Comparison of adult and student beliefs about the importance of tested intelligence can only be rather roughly drawn. For although the phrasing of the adult version of this question ("Do you think the kind of intelligence measured by intelligence, I.Q., or aptitude tests matters much in life?") is quite similar to the student version, the response alternatives provided are not at all comparable to each other. The bottom end of the four-point scale given to adults was defined by the phrase, "No, it matters very little," while the bottom end of the five-point scale provided to students was defined as "It is not important at all." The alternative that appears to have been omitted in the adult version corresponds to the student's second highest alternative—that intelligence was "more important than other qualities" for achieving success in life. (See Chapter 3.)

Given these differences in question format, comparison of the adult and student results must necesssarily be rather tentative. Still, it would seem that adults are less convinced of the importance of intelligence than were public secondary school students. Only 11 per cent of the adult respondents indicate that what the intelligence test measures "matters more than anything else" for achieving success in life. On the other hand, 13 per cent state that the ability measured by this type of test "does not matter at all," and another 19 per cent indicate that it "does not matter as much as other things." Indeed, the most popular response, checked by 58 per cent of the adults, is the rather neutral statement that tested ability "matters a great deal but is no more important than other things."

Why are the adults less impressed with the importance of tested intelligence than are the public school students? The most obvious answer is that this result is simply an artifact of formal differences between the two "importance" questions. Specifically, the result may be due to the absence of a response more positive than the adult's neutral one, but yet not so extreme a statement as is the adult's "it matters more than anything else." Other data suggest that this result may not be an artifact. Goslin's (1967) survey of teachers' attitudes also included a question on the importance of tested intelligence, one that was identical in format to the student item. Comparison of these data shows quite clearly that the adult teachers attribute less importance to the abilities measured by intelligence tests than do the public secondary school students. It may be that the older respondents are making a distinction between potential and performance—achieving success in life may seem to depend less on one's abilities and more upon what one is able to accomplish with them.

Social Background Characteristics

Beliefs about the importance of tested intelligence were, for the stu-

dent samples, strongly associated with such characteristics as sex, father's education, and race. The distribution of these beliefs for our adult respondents is independent of these characteristics. None of their relationships to the social background variables is significant at even the .05 level of confidence.

Part of the accounting for this impressive lack of agreement between the adult and student results would seem to rest squarely on the findings regarding the importance of tested intelligence themselves. The whole question of testing must have considerably less impact for the adults. Excepting those who are concerned with tests on behalf of their children's experiences with them, performance on intelligence tests no longer has any material consequences for the adult's life. Tests no longer bear the critical, opportunity determining significance that they have for many high school students, and other characteristics such as one's health or the quality of one's life must seem to "matter more" than does intelligence.

In general, then, the significance of this failure to replicate the student results would certainly seem to reflect the lower salience of tests for the adults. Beyond this, it seems quite possible that several other factors are involved. But as to the nature of these factors we can only speculate.

EXPERIENCES WITH TESTS

In the first part of this section we report on the distribution of adult experiences with standardized tests, the issue treated in Chapter 4 of the student survey. In the second part, we deal with a related issue: the extent of adults' knowledge of their children's exposure to testing.

Adult Experience

Information about adult respondents' own test-taking experiences was obtained by asking the question: "Have you ever taken any tests of your aptitude, I.Q., or intelligence?" A list of nine testing situations or contexts was then presented to which the respondent could reply "Yes," "No," or "Don't know or don't remember."

1. *General Findings.* The educational context accounts for the largest amount of testing. One respondent in three indicates having taken an intelligence or aptitude test in junior high school or in high school; 22 per cent report that they were tested in the elementary grades; and 18 per cent, or approximately three-quarters of those respondents reporting education beyond the twelfth grade, indicate that they were tested for college or graduate school admissions.

The extent to which test administration is becoming a practice in business and industry is reflected by the 25 per cent of the respondents who have taken a test when applying for a job. Also, 11 per cent of the respondents reported testing while "on the job," which suggests that tests are

involved in making such decisions as receiving a promotion, getting special training, and so forth. In the military, testing has become virtually universal; 23 per cent report such an experience, while only 26 per cent of the respondents indicate that they were in the service.

These data make evident the broad range of situations in which an American adult may encounter standardized testing procedures. Since the percentages cited above do describe overlapping portions of the adult sample (many adults have been tested in more than one context), we need a single, quantitative measure for the subsequent analyses of the social background correlates of test-taking experiences. For this purpose, an index score was constructed by summing the number of "yes" replies given to the nine testing contexts by each respondent. These data indicate that 41 per cent of the adults have never been tested, while correspondingly, 59 per cent report having been tested one or more times in at least one context.

This latter finding is in general agreement with the data reported by Fiske (1965), who found that almost two-thirds of the adults in his survey sample said that they had taken at least one test. It is important to note, however, that the proportion of adult respondents reporting test experience in any context (59 per cent) is considerably lower than the approximately 80 per cent of the public school students who say that they have taken an intelligence test at least once during their school career. This difference is largely a historical one. The testing experience of the youngest adult group, those 21 to 30 years old, is quite comparable to that of the public school students: 84 per cent of the young adults report at least one testing.

2. *Social Class.* We find a very strong relationship between the amount of education of adult respondents and the extent of their experience with tests. Approximately three-quarters of the respondents in the low education categories (that is, nine years of schooling or less) said that they have never taken a test in any of the nine contexts listed. For respondents in the higher education categories (those who report at least some college training), less than 20 per cent said they were never tested.

Since educational contexts are one of the main sources of testing, it is hardly surprising to find that length of schooling and amount of experience are positively related. This is especially so since both higher education and testing have become more common in recent years. Thus, respondents with less education were tested less often, in part, because they are, on the average, older than those with more education. The historical factor of having gone to school at a time when testing was a less ubiquitous event than it is today certainly contributes to the strength of the observed relationship. The data also reflect the fact that higher education respondents are more likely to pursue careers which require testing to a greater extent than do those with lesser education. Differences in edu-

cational attainment affect the likelihood of testing beyond school or college, a factor which is obviously not present in the generally parallel but weaker relationships found for secondary school students.

3. *Sex.* More female than male adults (48 vs. 34 per cent) report that they have never taken an intelligence or aptitude test and, correspondingly, fewer females than males (18 vs. 27 per cent) report that they were tested in three or more different contexts.

This result is at variance with the data from the public secondary school students: no significant differences between the amount of experience with intelligence testing reported by male and female students was observed in this sample, although males were tested more frequently in the parochial and private schools. The discrepancy between the student and adult data is precisely what one would expect, given the large amount of testing that occurs in occupational and military contexts. The male is more likely to encounter testing from these sources after his school years than is the female.

4. *Age.* The data for respondents' age tell us what we already know: that the use of tests is increasing and that testing will soon be an experience to which very few persons will not be exposed. The majority of respondents over the age of fifty report that they have never taken a test, while of the respondents under thirty, five out of six indicate that they have been tested in at least one of the nine contexts and, for the majority of these, testing has been experienced in more than one context.

5. *Race.* Respondents' race is strongly associated with the amount of experience with tests. Over half of the Negro respondents (57 per cent) reported never having taken a test, compared to only 39 per cent of the white adults. This result is consistent with our observations on public secondary school students. This difference in test experience is probably due to the generally lower economic status of Negro respondents. Negroes are tested less often also because they tend to leave school earlier than do the whites. Also, they tend to be in occupations in which tests are less often used.

6. *Religion.* Our data are suggestive of an association between religious affiliation and extent of experience with tests. More Jewish (39 per cent) than either Catholic (21 per cent) or Protestant respondents (23 per cent) report having been tested in three or more contexts. Let us note, however, that the number of Jewish respondents in the adult sample is quite small ($N=31$) and for this reason the relationship is not a significant one ($p<.10$). The trend is, however, consistent with the data for public secondary school students. It most likely reflects differences in educational attainment between the three religious groups.

In summary, the characteristics of respondents' backgrounds seem to bear a stronger relationship to the amount of experience with standardized tests for adults than they do for secondary school students. These

social factors leading to differences in experience have been operating for a longer period of time than is the case for students, for whom much of the testing is school-administered and controlled. The data for the adults also represent a historical era when testing was not the universal phenomenon that it is becoming today, permitting more powerful differentiation on the experience dimension.

Adults' Knowledge of Their Children's Test Experience

The data to be described in this section represent adults' responses to questions about their offsprings' contact with standardized testing. Information about parental awareness of the extent of their children's experience with testing was obtained with the following query: "Have any of your children ever taken an intelligence, I.Q., or aptitude test, for example, in school, in military service, or at work?"

1. *General Findings.* In analyzing these test experience data we have naturally eliminated those adults without children, thus reducing the sample size from 1,482 to 1,200 cases. Even with this adjustment, the proportion who indicate that their children were tested must underestimate the actual population proportion to some extent. This is so because the sample of 1,200 still includes, doubtless, parents whose children are too young to have taken any tests. Granting this, let us note that the proportion of adults reporting that their children took one or more tests (55 per cent) greatly underestimates the approximately 80 per cent of public secondary school students who claim to have taken one or more intelligence tests. Many parents, as Goslin (1963) has observed, are just not aware of the extent of their children's exposure to standardized testing in the schools throughout the primary and secondary grades. Of course, it need not be the case that the schools are entirely responsible for this lack of communication: lack of knowledge about children's testing may reflect a more general apathy about what goes on in the schools.

2. *Social Background Characteristics.* Characteristics of adults' social background are, as we have just seen, strongly related to the extent of their experience with tests. The question that we raise here is: Do these relationships also carry over to their children? What we would expect is that the differentiation between class levels or between racial groups would, on the whole, tend to be somewhat smaller for the children than it was for their parents. One reason for this is that the trend toward integration within schools and the homogenization of testing procedures between schools in a given administrative district that may represent a broad spectrum of social strata, should tend to reduce the correlation between testing and social variables. So, too, should the increasing usage of tests reduce the possibility for variation between groups. Of course, the student data presented in Chapter 4 make it evident that such homogenization is far from complete. The adult respondents' reports of their

children's experiences with tests complement and confirm the information provided by the students themselves.

We find that educational attainment of the adult is, as one would expect, positively related to reports about the occurrence of testing for their children. Almost two-thirds of the adults completing college indicate that their children were tested one or more times, compared to only one-half of those adults with nine or fewer years of schooling. This difference is consistent with our findings for the secondary school students themselves.

In regard to sex, mothers report greater knowledge about their offsprings' testing than do fathers. More mothers (58 vs. 50 per cent) report one or more tests for their children and fewer mothers (8 vs. 14 per cent) say that they did not know whether or not their children had been tested. This result would seem to reflect the greater involvement of mothers in the education of children, hardly an unexpected finding. The data are not comparable to the student results since they give no information about the sex of the child being tested, only that of the parent.

We find no particularly meaningful association between age of parent and reports about children's test experience.

More Negroes than white (48 vs. 32 per cent) report that their children never took a test and, correspondingly, fewer Negroes than whites (34 vs. 58 per cent) indicated that their children were tested one or more times. This result parallels the public school findings and reflects social class differences.

Jewish respondents tend to report more test experience for their children than parents of the other two religious groups. This relationship also coincides with the public school data.

THE ACCURACY OF INTELLIGENCE TESTS

The distribution of adult opinion about the accuracy of "intelligence, I.Q., or aptitude tests" generally is virtually identical to that found for intelligence tests alone in the public secondary schools. One-fifth of the adults think that the tests are "inaccurate" or "very inaccurate," while the remaining four-fifths see them as "accurate" or "very accurate." The only difference between the two sets of data, the absence of the qualifying adjective "somewhat" from the middle two response alternatives presented to the adults, would not appear to be a very important one.

Unfortunately, a question probing adult opinion on the accuracy of their own intelligence test results was not included in the interview series. We have, then, no data to report on for this issue.

The student data revealed a number of significant relationships between social background characteristics and beliefs about whether intelligence tests were, in general, accurate or inaccurate. (See Chapter 5.) The distribution of these beliefs among adult respondents was, in con-

trast, found to be largely independent of these characteristics. None of the relationships reaches even the 5 per cent level of confidence. One source of the discrepancy between these two sets of findings probably lies in the lesser importance that adults generally attribute to intelligence tests. Let us also note that the beliefs about the accuracy issue may also be influenced by powerful, but largely idiosyncratic determinants such as the influence tests are seen to have on their children's education.

SELF-ESTIMATES OF INTELLIGENCE

General Findings

Information relevant to adults' estimates of their intellectual level, a topic treated in Chapter 7, derives from a question already mentioned. The distribution of responses to this question: "How do you think you compare with other people in intelligence?" is presented in Table C.2.

As was the case with student respondents, the tendency for the adults is to describe themselves as higher in intelligence than their peers. Thus, 21 per cent of the adults indicate that they are more intelligent than the "average person in the United States today," while only 8 per cent indicate that they are less intelligent; 30 per cent see themselves as higher in intelligence compared to people who "do the same kind of work" that they do, while only 2 per cent think that they are lower in intelligence than these individuals. The majority response is clearly to say that one is similar in intelligence to the comparison others. The upward push in self-evaluation, thinking of oneself as brighter than others, is less evident in the adult distributions than it was for the students—most likely because of the different questions used in obtaining the data.

Social Background Characteristics

Further analyses of adults' estimates of their intelligence were facilitated by the construction of two indices. Specifically, we summed the

TABLE C.2 Adult respondents' attitudes toward their own intelligence in comparison to that of other persons

	Adult Is . . .			
Comparison Individuals	*Higher in Intelligence* %	*Same in Intelligence* %	*Lower in Intelligence* %	*Total* % (*f*)
Average person in the U.S. today	21	71	8	100 (1467)
People who do the same kind of work	30	68	2	100 (1378)
People you went to high school with	27	68	5	100 (1141)
Most of your friends today	12	85	3	100 (1467)

number of instances in which a respondent stated that he was "higher in intelligence" than any of the comparison persons listed in Tables C.1 and C.2. The second index consisted of a separate sum of the number of "lower in intelligence" statements. The results to be cited below therefore refer to the proportion of respondents in any given grouping who consider themselves to be either higher in intelligence or lower in intelligence, respectively, than any one or more of the nine possible comparison persons.

The extent of the adults' educational experience is strongly related to stating that one is higher in intelligence than one or more of the comparison persons. Similarly, the belief that one is lower in intelligence than one or more of the comparison others is almost twice as frequent among adults with only a primary grade education (66 per cent) as it is among adults who have graduated from college (38 per cent). This result is in accord with our finding that, controlling for actual reading test scores, students whose fathers received little formal education give lower estimates of their intelligence than do students whose fathers have had extensive education.

There is no appreciable difference between the proportion of male and female adults who estimate their intelligence to be higher than one or more of the comparison others. However, we do find that many fewer males than females (53 vs. 68 per cent) state that they are lower in intelligence than a comparison person. This result is consistent with the student data: females generally tend to give lower estimates of the intelligence than do males.

In regard to age, we find that younger respondents more frequently state that they are higher in intelligence than older respondents, while the reverse is true for statements that one is lower in intelligence. Taken together with the student results, these data suggest that the form of the relationship between respondent age and appraisals of intelligence is a curvilinear one—an inverted "U." High self-estimates of intelligence increase in frequency as we move from the tenth to the twelfth grade. For adults the frequency of "higher in intelligence" responses is largest, and the frequency of "lower in intelligence" responses smallest, in the 21- to 30-year-old age group.

We find no relationship between respondent's race and intelligence comparisons: the proportion of white and Negro adults who indicate they are higher or lower in intelligence than one or more comparison persons are virtually identical. In view of the lesser educational attainments of Negro adults, this independence is surprising. One would, on *a priori* grounds, expect more negative and fewer positive comparisons from this group. It is important, however, to point out that this result is generally consistent with the public school findings. The only appreciable difference in the distribution of self-estimates among Negro and white students was

found among those low in Reading Test scores, and here the data show that it is the Negro respondents who were most likely to present high self-estimates of their intelligence.

Adult religious affiliation is not significantly related to intelligence comparisons. The trend in the data is consistent with the public school findings in that Jewish respondents claim to be higher in intelligence than a comparison person more frequently (93 per cent) than either Catholic (83 per cent) or Protestant (72 per cent) adults. Jewish respondents also report lower intelligence in a comparison with others less frequently (51 per cent) than either Catholic (65 per cent) or Protestant (59 per cent) adults.

Social background characteristics, then, are related to adults' intelligence comparisons in much the same way as they are to students' self-estimates of intelligence. The differences in the measurement procedures employed for these two groups does not seem to affect the direction of the relationships observed and thus our confidence in the generality of the findings is increased.

REPORTING OF TEST RESULTS

Adult Feedback

Information about test feedback was provided by the following question: "Think for a moment of the intelligence, I.Q., or aptitude test(s) you have taken. How clear or definite an idea did you get about your intelligence from the tests you took?" Half of the adults seem satisfied with the feedback they received; 25 per cent said that they got "a pretty good idea" and 24 per cent "a very good idea" of where they stood compared to others.[1] An additional 19 per cent report having received "a general idea" of where they stood, while the remaining third (30 per cent) said they learned nothing about their intelligence from taking tests because they were never given any information about how well they did. Although this item is not directly comparable to the student feedback item (there is no inquiry as to whether adults received specific percentile scores), the general impression one gets is that information reception among adults is generally comparable to that reported by students. In each case approximately one-third of the respondents claim not to have received any feedback about the quality of their test performance.

Among the social background variables, only sex showed any significant association with feedback from test experiences. Respondents' education was not appreciably related to the reception of information from testing, although, as with the secondary school data, we did note a weak trend toward better information among the higher education groups.

[1] Percentages reported in this section are based only on that fraction of our sample of adults who indicated having experience with tests.

Male adults claim to be better informed about their test performance than do female adults. More males (54 vs. 46 per cent) say that they got "a good idea" about this, while fewer males (21 vs. 33 per cent) report that they received "no information about their performance." This relationship is not consistent with our public school findings, where no sex differences in reception were observed. The most plausible interpretation of this difference is that receiving feedback may be more likely an occurrence in cases where testing is done outside the school contexts (military testing is an example of this). And, as we know, this extra-school testing is a more common occurrence for male respondents.

Age, race, and religious affiliation were not related significantly to reception of information about test performance.

Adults' Knowledge of Their Children's Test Results

The data to be described here represent adults' responses to a question about their offsprings' performance on standardized tests.[2] The question on knowledge about feedback, "Did you ever receive any information about how well your children did on any intelligence, I.Q., or aptitude tests they took?" is virtually identical to the student item on this topic. (See Chapter 9.)

Over a third of the respondents (36 per cent) whose child was tested reported that they had learned nothing about his test performance. On the other hand, about a third (34 per cent) said they had received "a very good idea about this," with the balance indicating that they either had "a pretty good idea" (18 per cent) or "only a general idea" (11 per cent) about the level of their child's performance. It would seem that if the child takes a test, the parent is about as likely to get no feedback at all as if he were to take a test himself. On the other hand, if the parent does receive feedback about the child's test, his information is likely to be more comprehensive than what he might get about a test he took himself. Feedback to parents about offsprings' test results tends to be more specifically all-or-none than it is to the students themselves. This seems to reflect an interesting philosophy on the part of the test administrators. The parents' right to have knowledge about, and thus control over one's own person, seems at issue. The distribution of feedback of varying degrees of specificity by adults seems generally comparable to that given by the public school students themselves.

The two social background characteristics, race and education, relate to knowledge of children's test results in the expected manner. Adults with higher education report receiving "a good idea" about their chilld's intelligence far more frequently than those with fewer years of schooling

[2] Adults indicating that their children had not been tested were not included in the analyses reported in this section. This reduces the size of our sample from 1,200—the number of respondents with children—to 652 respondents, a substantial loss and one that is correlated with the adults' social class, race, and sex (see pp. 257–258).

(65 vs. 40 per cent). Similarly, we can see that more white than Negro respondents (53 versus 39 per cent) felt they received "a good idea" about where their children stood. Two implications follow from these findings: Either lower-class (or Negro) parents have less desire for feedback—then this lack of information should not present a problem—or they have an equal desire but find their search for information blocked.

PERCEIVED CONSEQUENCES OF INTELLIGENCE TESTING

The majority of adults who have taken intelligence tests report that their lives have been influenced by this event. However, a substantial proportion of those tested (39 per cent) indicate that this experience had no consequences for important decisions in their life.

Our information about the influence of tests derives from the following question: "Now think of all the intelligence, I.Q., or aptitude tests you have taken. Do you think any of these things happened to you partly *as a result* of taking these tests?" A list of twenty hypothetical events accompanied the item. The areas covered by these ten positive and ten negative events were those that, on *a priori* grounds, we expected to account for the largest number of test-taking experiences; namely, the educational system, the work situation, and the military.

General Findings

A cursory inspection of the results suggests the conclusion that the effects attributed to tests are relatively slight or infrequent. In 16 of the 20 items, the "No" category contains at least 80 per cent or more of the responses.[3] In only 4 of the 20 items did the "Yes" category hold more than 15 per cent of the responses. However, when we look at the individual items more closely, we see that the perceived effects for those respondents for whom the item was appropriate were actually fairly strong. For example, the first item: "Being placed in a special advanced group in grade school or high school." Only 15 per cent of the respondents reporting test experience said that this happened to them partly as a result of taking tests. However, how many pupils are put in advanced groups in school? Certainly not more than 50 per cent, most likely, even fewer. Considering the relatively smaller number of respondents who actually could have had such an experience, the reported frequency looms quite large. Similarly, consider that 6 per cent of the respondents reported tests as instrumental to being skipped a grade. What is the percentage of students who are being skipped? Certainly not much more than 6 per cent. Other areas where the reported frequencies seem large were the military and the job situation. In each instance, about one-third of the

[3] As would be expected, only those adults reporting experience with tests are retained for the analyses in this section.

respondents saw tests as having some influence upon their fate. Being admitted to college was similarly perceived as partly the result of taking tests by about one-third (30 per cent) of the respondents reporting test experience.

The data parallel our secondary school student results in another respect. When an adult sees a test as having effects on his life, these effects tend to be positive ones. Thus, tests are reported to have helped place respondents into special advanced groups in school (15 per cent), but not into slow groups (2 per cent); they were involved when a respondent had skipped a grade (6 per cent), but not when he had been held back (0 per cent). They were seen of considerable help for being admitted to college (30 per cent), but not for failing to be admitted (0 per cent). Tests affect chances of winning a scholarship or fellowship (6 per cent), but they do not affect failing to win one (0 per cent). They are influential in getting a good job in the military (34 per cent), but hardly so in being kept from a good assignment (3 per cent). They are seen as instrumental when being hired (34 per cent), or promoted (17 per cent), but much less so when not being hired (6 per cent), or when not being promoted (2 per cent). They matter when deciding to try for a better job (15 per cent), but do not when not trying for one (2 per cent).

In summary, it may be said that these tests are seen as having considerable effects in certain areas and that the kinds of effects reported are mostly positive ones. One interpretation of this is to postulate some process of denial or selective forgetting on the part of the respondents. Another explanation of this result, this one on the perceptual level, involved the figural effect of a positive consequence as compared to the ground-like quality of negative consequences which often involve no change in status, has already been discussed in Chapter 11.

The percentages of adults who do see effects stemming from test-taking overlap to some extent. We have no particular interest in any particular consequence of testing, and so our subsequent analyses of the perceived effects of tests are limited to their quantitative aspects. Indices were constructed by summing the number of positive and negative consequences reported by each respondent. A third index, "Perceived total influence," was created by summing the scores obtained on the first two. The results for this "total influence" index parallel those for the positive effects index, the negative effects add little information due to the low frequency with which they are reported.

Social Background Characteristics

In general, we found no substantial relationship between social background characteristics and the perceived consequences of testing other than for social class. Small deviations from the general pattern did occur, but they did not seem consistent. The picture is different when we

look at social class variables. About half of the respondents on the lower end of the social class continuum saw themselves as unaffected by the test experience ($<.01$). In contrast, two-thirds of the respondents in the highest social class reported one or more effects of having taken a test. And the higher the class, the more effects were being reported. We have here a powerful relationship. The findings reflect the fact that the upper classes have more opportunity to be affected by tests. The upper-class respondent is more likely than the lower-class respondent to apply for college admission, to apply to a better college, to win a scholarship, and so forth, and in each of these instances tests may have been perceived as instrumental in reaching the goal. On the other hand, it is also possible that the test experiences of the lower-class respondents tend to be negative. Since these respondents have a lower education, they are more likely to "fail" on such tests. As a consequence, their test experiences will tend to be unpleasant ones and may well be either suppressed, or, as we have argued, go unnoticed. We cannot tell the relative contribution of experience and perception to these social class differences in reported effects, but we suspect that both factors are operative.

Data for "perceived positive influence" parallel those reported for "perceived total influence" and therefore they were not presented separately. The number of respondents reporting "perceived negative influence" was too small to warrant a meaningful cross-tabulation.

In contrast to this powerful result, we were surprised to find that none of the other social background variables related significantly to the number of effects attributed to tests. We would, for example, have expected more effects to be seen by males than by females; by more white respondents than by Negro respondents. The data did not, however, bear out these expectations.

ATTITUDES TOWARD THE FAIRNESS OF USING TEST RESULTS

"Given tests as they are now, do you think it is fair to use intelligence, I.Q., or aptitude tests to help make the following decisions?" Six of the seven specific decision situations posed in the adult survey were identical to those in the students' questionnaire. (See Chapter 12.)

Comparison of responses in these decision situations makes two conclusions quite evident. First, there are wide variations, even more so than is the case with students, between decision contexts in the proportions of adults who affirm the fairness of using tests. Second, adults show a greater willingness to use test results across many contexts in helping to decide these issues. The data presented in Table C.3 help to illustrate both of these points.

The greater variability in adult attitudes about the fairness of using tests may be associated with age and experience, leading to an increased

TABLE C.3 Proportion of adult and public school respondents who agree to the fairness of using tests by context

Context:	*Adult % "Yes"*	*Public School % "Yes"*
To put children into special classes in school?	75	42
To find out which children in the family should be given the most education?	37	12
To decide who should be hired for a job?	58	33
To decide who should be promoted on a job?	46	24
To decide who should be allowed to vote?	12	8
To decide whom one should marry?	8	5

sensitivity to the moral, social, and pragmatic appropriateness of the use of tests in one social context rather than another. And it may be that the diversity of experience, greater in the adult population than among the student respondents, leads to more differentiation of opinion.

As for the more favorable attitudes, in general, toward using tests in different social contexts on the part of the adults compared to the students, we can report that it is not just a difference in age that is involved here. While the data show a few trends toward greater favorability of attitude among the old respondents (for example, on family member to receive most education, job promotion), these are not substantial and are not systematic. Moreover, even the youngest adults are clearly more favorable toward test usage than are the students. It seems that the cause of the difference is situational rather than personal, in that the negative attitudes toward use of tests is characteristic of those for whom the issue is still a highly salient one, that is, for students who still must take tests and for whom test scores are a powerful influence on the future. Perhaps the matter of comparability in the data gathering situation also plays a role here. As we noted at the outset, in some cases the face-to-face interview situation used in the adult survey may make it more difficult to make certain kinds of responses. In this case the respondent may be uneasy in stating, "No, I don't think it would be fair to use tests to do that;" while the student respondent, secure in anonymity and an impersonal situation can more freely express his negative opinions.

The data show no important differences in these attitudes about fairness that are associated with sex, race, or religious affiliation of the adults. While we cannot confirm directly the interaction effects found in the student data between social class test attitudes and situations, there is some evidence of replication. The item on "selecting leaders for government" was not included in the adult survey so that comparison is not possible. But we do find that the decision concerning job promotion shows those with higher education to have a much less favorable attitude to-

ward using tests; this confirms, then, half of the important interaction effects reported for the students.

In conclusion, what impresses us in the comparison of the data from the adult survey with that of the national sample of students is the similarity in the two generations of their attitudes and beliefs about intelligence and its testing, and also the similarity of the relationships of these attitudes and beliefs to socioeconomic factors in both groups. In our judgment the adult data are a strong corroboration of the stability and validity of the student data reported in the main body of the book.

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