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AS PREDICTIVE TESTS HAVE BECOME MORE COMMON AND AS THEIR VALIDITY HAS INCREASED, RELEVANT QUESTIONS HAVE SHIFTED FROM WHETHER WE SHOULD TEST TO WHEN, HOW MUCH, OR WHY WE SHOULD TEST. A FIRST ISSUE IN THE SOCIAL EFFECTS OF PREDICTIVE TESTING IS THE RIGHT OF THE SOCIETY TO REQUIRE ITS MEMBERS TO REVEAL INFORMATION ABOUT THEMSELVES, EVEN THOUGH SUCH INFORMATION MAY LATER INFLUENCE DECISIONS AS TO OPPORTUNITIES AVAILABLE TO THEM. THIS QUESTION RELATES TO MATTERS OF PRIVACY AND THE NATURE OF NECESSARY INFORMATION. THE SECOND ISSUE CONCERNS THE RIGHT OF THE SUBJECT (OR HIS PARENT) TO KNOW WHAT INFORMATION THE SCHOOL HAS ABOUT HIM, AS WELL AS THE OBLIGATION OF THE SCHOOL TO FURNISH SUCH INFORMATION, EVEN WHEN IT HAS NOT BEEN REQUESTED. THE THIRD ISSUE IS THE RELATIONSHIP OF PREDICTIVE TESTING TO THE RISE OF A MERITOCRACY OR TO A POSSIBLE GRADUAL SORTING OUT OF A POPULATION ON THE BASIS OF INTELLIGENCE AND THE RESULTANT ESTABLISHMENT OF A RIGID CLASS SYSTEM. THIS PAPER WAS PRESENTED AT THE CONFERENCE ON MORAL DILEMMAS OF PUBLIC SCHOOLING (UNIVERSITY OF WISCONSIN, MAY 12-14, 1965). (WO)

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The Social Consequences of Predictive Testing in Education

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The Social Consequences of Predictive Testing in Education[1]

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Despite numerous attacks on their efficacy and accuracy, standardized tests for the measurement of intellectual abilities have become a routine and virtually universal part of the educational process in the United States. The evidence of a growing reliance on standardized tests for both predictive and evaluative purposes in schools and colleges has been accumulating rapidly during the last five or six years--to the point where the relevant question is no longer "should we test?" but rather, "when, how much, or for what purposes should we test?" In a sample survey of 750 elementary schools in New York, New Jersey, and Connecticut, we were able to turn up only a single school in which standardized ability tests had never been systematically used, nor contemplated for use in the immediate future.[2] At the high school level the picture is equally clear, if not clearer.[3] It seems to be a fact that once a school (or school system) initiates a testing program, the chances of its being abandoned at some point in the future are slim indeed. Further, our data indicate that with only a few exceptions school administrators, guidance counselors, and teachers alike are convinced of the usefulness of ability tests (and, incidentally, of their general accuracy).

Up to now the debate over testing has been focused primarily on the issues of validity and reliability: Do tests measure what they are supposed to measure and do they do their job consistently, both from individual to individual and for the same individual at different points in

time? It seems to me that the battle over these points has been largely won by those who advocate the use of tests, as is evidenced by their acceptance throughout our educational system. Criticisms and complaints are still raised, of course, and no doubt there will continue to be opposition to tests on the grounds that they aren't very accurate, that their use results in some capable individuals being overlooked, or that extraordinarily gifted children are penalized because questions are aimed at the mind that works along conventional channels.

The fact of the matter is, however, that tests probably constitute as accurate a method for assessing intellectual abilities (at least of a certain type) as any alternative means currently available, including school grades. And they are likely to get better as our psychometric sophistication increases. From the standpoint of the most efficient allocation of talent in the society, tests are clearly superior to a variety of methods that have been used at various points in the history of man; for example, skin color, family affiliation, proficiency at spear wielding, susceptibility to fits, size of head, and the like.

It is not the contention of this paper that we have passed the point where we should be concerned about the validity of tests. Clearly valid criticisms of various uses of test scores (for example, the employment of cut-off scores or the rigid use of tests with culturally deprived groups) may be raised in the light of our knowledge that tests are far from being precise instruments. But I do wish to suggest that we have come far enough to pose an additional set of questions about tests--those related to the <u>effects</u> of testing, regardless of validity,

and <u>especially</u> including those cases in which the test adequately performs the task expected of it. In fact, with respect to the three issues I wish to discuss, it may be postulated that the <u>greater</u> the accuracy of the test involved, the <u>greater</u> the seriousness of the problem.

Two preliminary points must be made. First, I am concerned here only with what I have defined (elsewhere) as "standardized, ability tests."[4] I include in this definition all standardized, objective tests for the measurement of achievement and intelligence (that is, IQ and achievement tests) and exclude personality tests, interest tests, and related instruments. And second, my remarks will be concerned primarily with testing that is undertaken with <u>predictive</u> intent as opposed to <u>evaluative</u> intent. Although this distinction is sometimes rather difficult to make in practice (since a test score may be used for both purposes), conceptually it may be seen that tests can be given either for the purpose of predicting an individual's future performance (for example, the college admissions test), or in order to evaluate past performance <u>per se</u>, with little or no interest in the implications of this performance for the subject's behavior in subsequent situations. In the latter case, the primary reason for testing might be to diagnose learning difficulties on the part of the individual or to evaluate a new teaching method. Operationally, a predictive test may <u>sometimes</u> be distinguished from an evaluative test by applying the following criteria: predictive tests (1) are not <u>necessarily</u> related to previous work, (2) do not <u>necessarily</u> contain items having a high degree of face validity, and (3) typically result in more attention for the child who does well

on the tests than for the child who does poorly. Conversely, evaluative tests are more closely related to previous work, usually contain items having a fair degree of face validity, and are likely to result in more attention for the low-scorer than for the high-scorer. While the distinction just made may be viewed as hair-splitting, the reasons for it will, I hope, become apparent before the end of the paper.

Testing and the Right to Privacy

The first of the three issues I wish to consider centers around the following questions:

> To what extent does the society have the right to require its members to reveal information about themselves even though this information may later influence, perhaps in a negative way, critical decisions about the opportunities open to them?
>
> And conversely: What rights does an individual have to determine what information about himself he will reveal and under what conditions he will reveal it?

There seems to me to be little doubt that individuals, at least in our society, do have (or are supposed to have) some rights which collectively we feel should be preserved against all threats and attempts at erosion. The rights of free speech and to freedom from search and seizure without due process fall into this category. The right to privacy, at least in regard to some aspects of our life, appears, at first blush, to be a candidate for the list. But the problem is not so simple. The traditional and frequently exercised justification for the invasion of an

individual right is that the welfare of the society as a whole demands it. Thus, the potential operator of a motor vehicle must submit, at the very least, to a test of his eyesight, coordination, and knowledge of the motor vehicle code.

In preserving any society or group we are continually challenged by the confrontation between the rights of individual members of the group and the demands of the group that these rights be relinquished in the service of the common good. This confrontation is clearly the source of difficulty in the present instance. It is not very hard to demonstrate that the efficient operation of an educational system requires that those charged with responsibility for its operation have some information about the individuals they are charged with educating. And since the society's members have agreed that a compulsory educational system is necessary for the well-being and development of the society, justification for the gathering of necessary information may be adduced.

So far, so good. But what constitutes information that is necessary for the operation of this system? Probably no one will be inclined to argue very strongly that information about the progress of children is unnecessary for the conduct of education. Although conceivably a school might be run without ever attempting to make any judgments about whether pupils were learning anything, the segmented, step-wise nature of educational systems in this country makes virtually mandatory estimates of the accomplishments of pupils at various stages. Thus, at the outset, we will agree that a strong case can be made for the necessity of evaluative testing if we are to maintain a compulsory educational system.

But the argument is less clear-cut, it seems to me, when we consider predictive testing. Predictive tests are used to estimate the ultimate performance of individuals prior to their entering a situation, usually for one of two purposes: (1) to adapt the system in some way to the characteristics of those entering it (for example, tracking or homogeneous ability grouping) or (2) to eliminate those who have a low chance of success.

Nearly everyone is aware of the fact that predictive testing is an important part of the process of screening applicants to selective specialized institutions at all levels, from private elementary and secondary schools to specialized public schools (for example, Bronx High School of Science in New York City) and most institutions of higher learning. In this case the issue of privacy and predictive testing is easily solved. Where the decision to apply to a selective institution (and, consequently, to undergo whatever admissions procedures are necessary) is voluntary, the individual, by his voluntary act of application, gives up his claim to a degree of privacy regarding his personal characteristics. The question of justification based on necessity need not even be raised. However, regular school attendance is not a voluntary matter in this country and a routine school policy, therefore, leaves the individual with no real choice about whether or not he will comply. Under these conditions testing without the consent of those being tested (or their representatives) is an invasion of privacy, which, consequently, must be justified on the grounds that the school could not carry out its societal mandate to educate the young (or at the very least would be

severely handicapped) without employing such tests on a mandatory basis. I should again make clear that I am concerned here only with testing that is carried on without the express permission of the child or his parents, or both.

Is mandatory predictive testing so integral and necessary a part of school policy as to justify the real and potential invasion of privacy that it represents, or should schools be required to obtain the explicit permission of parents (and children) to indulge in this form of testing, regardless of the test used? As I have indicated, except for screening applicants for admission, predictive tests are used primarily by schools to facilitate the sorting of children into different classes according to presumed ability to handle material of different levels of difficulty or to form sub-groups within regular classes in order to make it easier for the teacher to adapt her lesson to children of varying abilities. I am referring here to what is commonly known as homogeneous ability grouping, tracking, or some related policy. Two answers to these questions may be given.

First, research data on the educational value of ability grouping are at best mixed and at worst negative with respect to its benefits. The value of the school policies which predictive testing makes possible has yet to be conclusively demonstrated. And second, were we to establish the relative advantages of ability grouping, alternative methods of selection--for example, prior classroom performance or even "achievement tests"--are readily available and just as accurate. In the light of these arguments I find it hard to conclude that predictive testing is

sufficiently vital to the educational process to engage in without asking someone's permission.

As long as we regard the results of our tests as explicit measures of achievement (including a component of motivation, concentration, interest, and the like--not to mention good teaching), we can justify this invasion of privacy on the grounds that such measures of a child's progress are necessary to the conduct of education. However, if we intend to impute a deeper and more permanent meaning to the test score (for example, that it has something to do with intelligence), we must not test without asking permission since the critical value to the school of such inferences about individuals has yet to be conclusively demonstrated. It is true that I am talking about an attitude, an approach to the interpretation of a score, but it becomes a vitally important attitude to the child involved when it results in a numerical score on his permanent record that may be interpreted at any time in the future as representing some relatively inherent, permanent and unchanging attribute. In this event, it seems to me that the individuals involved should have something to say about what use may be made of this information, and, indeed, even whether it should be collected.

Another way of putting the problem is this: When it comes to matters of critical importance to the individual--like intelligence--to what extent should "I" have the right to bluff "you" (for example, by working very hard) into thinking that I have more inherent ability than I "really" have?! Why should I have to be tagged as an "over-achiever" when, by refusing to let you write down an IQ score for me, I could

perhaps lead you to believe that I am quite an intelligent person instead of just a "hard worker" (assuming that I would rather have you consider me intelligent than an especially hard worker).

I am arguing that an individual ought to have some prerogatives in selecting the strategy by which he wishes to present himself to the world. Some individuals would no doubt choose to have their high IQ recorded and then sit back and reap the rewards of being inherently exceptional persons. Others would prefer to compete purely on the basis of actual performance in a situation--be it the classroom or the office--relying on high motivation to make them look like (possibly) more intelligent individuals. The story is told, for example, of the Harvard undergraduate who disappeared about Christmas time and showed up at his mid-year exams sporting a deep tan and carrying a tennis racket. He managed to get straight A's, much to the amazement of faculty and other students who were unaware that he had spent the entire time locked in a local hotel room studying with the aid of a sun lamp. I am suggesting that we ought to consider the long run impact of the mandatory, universal use of IQ test scores on this kind of free enterprise one-upmanship in our society. I shall return to this point later in the discussion, but let us move on now to consider the next "dilemma" created by the use of tests.

Testing and Secrecy

The second problem resulting from the use of tests in schools concerns the disposition of the information created by the administration of the test. The issue may be phrased as follows:

Does a child or his parent have a right to know what information the school has about him? And further, does the school have an obligation to provide him (or his parents) with this information, whether or not he asks for it?

Related to these central questions is a peripheral issue that appears when one considers the possible effects that the information may have on its recipient. This latter problem, although conceptually distinct from that of the individual's rights to know what others know about him, is clearly part of the dilemma, since the hesitancy on the part of the school to provide parents and children with test scores has traditionally been attributed to the fear that such information would have a harmful impact on the individuals involved (either as a consequence of their inability to understand the meaning of the information given, or because of the nature of the information in and of itself). In fact, the whole problem may be turned around by suggesting that the school may have an <u>obligation</u> to withhold from parents any information it collects about their children on the grounds that to divulge it to parents constitutes an invasion of the <u>children's</u> rights to have such information kept confidential!

From a legal standpoint, early indications are that the courts will be inclined to affirm the rights of parents to have access to their children's <u>permanent</u> record, including any test scores that may be a part of that record. In a recent and relatively celebrated New York decision, a Long Island parent won the rights over the opposition of the school to look at his child's record and in particular the child's IQ test score

(which was part of the record). The reaction of the New York State Psychological Association to this decision has been to accept it gracefully, with the entirely reasonable proviso that no parents should be allowed access to raw test scores without interpretation by qualified school personnel. So far, no school administrator or psychologist has suggested openly that schools might avoid the issue by redefining what constitutes the child's "permanent record."

Up to now, few parents have been inclined to press their advantage in this area, a fact which is probably due partly to the school's forbidding attitude about such things, but mostly to the fact that parents either don't know that their children's intelligence is being tested in school or are not really interested in knowing what it is. I suspect that as tests become more accurate and are more extensively used, they will become more visable and of more concern to parents and children. As this occurs, schools are likely to be faced with increasing pressure to provide parents and children with test scores, a pressure to which they will probably be forced to accede.

Legal and moral obligation aside, what are the effects of telling a child (or his parents) how well he did on an IQ test? More than three-fourths of the high school students in our sample were aware that they had taken an intelligence test at one time or another in school. Of these, well over half had received information about their performance, ranging from specific scores (37 per cent) to "general information." What effect this information had on them, however, is a much more difficult question to answer. Thus far, relatively few concrete

data have been gathered on this topic. Our work indicates that although children are able to rank their peers on intelligence with remarkable accuracy, those who themselves are in the lower half of the distribution tend to evaluate their own intelligence rather optimistically compared to their acquaintances or children in general. This is, of course, not an unexpected finding. However, in our sample of high school students we find a small but significant number of boys and girls who either over-estimate or under-estimate their intelligence rather drastically. Thus, while an IQ test score probably would not come as too great a surprise to the majority of children and their parents, for some (if we can believe our results) it would contrast sharply with their privately held view of their abilities.

As long as tests generally are perceived as being relatively inaccurate by children and their parents (only 10 per cent of our high school students felt that IQ tests were "very accurate"), a test score that diverges significantly from an individual's self conception may be dismissed as being in error without too much difficulty. However, as our testing technology improves and more information about tests becomes available to the public, the attitudes of parents and children are likely to become more like those that are now held by teachers, counselors, and other school personnel, who, in general, tend to view tests as useful and accurate measurement devices. Under these conditions, test scores may have a far greater impact on self-estimates of intellectual capacities.

From a practical standpoint, this does not present much of a problem where test scores are higher than the individual's self estimate. Aside from the small possibility that such information might cause the individual to become complacent or arrogant (not a very likely possibility in view of the current competition for scholastic and occupational achievement in our society, especially at very high ability levels), the overall impact can be expected to be beneficial. The problem is more serious, however, when the test-taker holds a much higher opinion of his abilities than is warranted by his performance on the test. It may be argued rather forcefully that in the long run a more realistic appraisal of one's own abilities is an advantage. However, the society may pay a price for this disillusionment in lowered aspirations and motivation to achieve. This is a point on which careful research is urgently needed.

In either case, as has been suggested above, it seems highly probable that schools will find increasingly that they have little choice in the matter once the decision has been made to give a test. Under these conditions it is conceivable that there may be occasions when wisdom will dictate the non-use of tests on the grounds that having a little less information about an individual might be preferable to the inevitable impact of the information once it has been created.

We thus return to our earlier implicit hypothesis that a certain amount of ignorance may be functional for the society, an idea that was proposed by Wilbert Moore and Melvin Tumin some fifteen years ago.[5] Along with a number of other contexts in which ignorance was viewed as being a prime requisite for certain institutional forms in society, Moore

and Tumin noted that ignorance was a necessary component of most free competitive markets owing to the fact that "differential access to knowledge destroys the freedom and fairness of competition."[6] They suggested that too much knowledge on the part of participants in a situation unavoidably undermines the process of competition either through the creation of overwhelming power combinations or, in other circumstances, by making the outcome so certain that no further action is required. Thus, as we acquire information about an individual's intellectual capacity, we run the risk of taking some of the fun out of the game of life; and with it, perhaps, the elements of risk and striving and uncertainty that give our society much of its vitality. This is a point to which we shall return as we discuss the third dilemma that is created by the use of standardized tests.

Testing and the Rise of Meritocracy

The major rationale for the use of standardized tests is that they constitute the most accurate and efficient means thus far devised for sorting people--adults as well as children--into different categories according to their abilities to perform the various tasks in society. As we have pointed out, tests are vastly superior to skin color, religion, or even, in most cases, family background for this purpose, especially if one's criterion performance bears some resemblance to the test situation, for example, school accomplishment.

I would now like to make explicit three additional assumptions that are fundamental to the argument that follows--it is my opinion that in no case does their acceptance require any significant stretching of one's credulity.

First, I would like you to entertain the hypothesis that we will continue to utilize intelligence and general aptitude tests (that is, predictive tests) for differentiating among individuals and, further that the present trend toward their use at earlier and earlier ages will, at the very least, not be drastically reversed. As the society becomes technologically more complex, it seems reasonable to predict that the pressures for the earlier "identification of talent" will not abate and that, if anything, there will be a tendency to put children onto educational tracks at even earlier ages.

Second, I would like for you to assume that an individual's general intellectual capacity is influenced to a more than trivial degree by his genetic endowment. Although geneticists and psychologists still disagree about the precise nature of the genetic component in intelligence as well as about the number of specific "factors" that go into an individual's intellectual makeup, the evidence from twin studies and other research that such a component exists appears to be incontrovertible.[7]

The third major assumption is that the proclivity of individuals to marry individuals like themselves (for example, those who come from similar occupational and educational backgrounds) will not be significantly altered.

If tests continue to play a major role in determining the educational and occupational opportunities available to a member of the society, if individuals choose marriage partners like themselves, and if one's intelligence is determined in part by the intelligence of one's parents, we may expect, over time, a gradual sorting out of the population on the basis of general intelligence. Those members of the society

who inherit the greatest intellectual capacity will constitute a new and increasingly exclusive upper class, while those individuals who find themselves lacking in intelligence will be relegated to the lower classes. Theoretically, the class structure may remain quite open, with every opportunity available to the child with talent. But in practical terms, it seems quite possible that there will be a steady decrease in the number of lower class children who will achieve high status simply because there will be fewer and fewer lower class children who are intelligent enough to meet the standards required for allocation to a higher status position.

In addition, as the length of time necessary to acquire the skills needed for the majority of positions in the society increases (due to technological advances), earlier decisions will have to be made concerning which children will be permitted to train for higher status positions. Consequently, children and their parents are likely to become aware, at a very early age, of their chances for social advancement and of the kind of career that ultimately awaits them. Once again, it is apparent that we are faced with the prospect of decreased chanciness in our society--with the fact that our capacity to evaluate individuals more systematically and accurately makes possible both increased predictability and, almost by definition, increased rigidity in the social system.

What effect might these developments have on our society? Is not predictability, with or without rigidity, a good thing for both individuals and groups? Two separate points may be made in answer to these questions: The first concerns the degree of diversity of talents and abilities sought by the predictive system regardless of how accurate it

is and the relative value assigned to each. The second concerns the absolute effect of knowledge about one's life chances on individual motivation, happiness, creativity and the like. Let us consider these in turn. Michael Young ended his novel, The Rise of the Meritocracy, with the revolt of the lower classes who, in their revolution, rejected absolutely the principle that any single human characteristic such as intelligence should be the basis on which critical evaluations of individuals were made. These fictional lower class members phrased their point of view as follows:

> The classless society would be one which both possessed and acted upon plural values. Were we to evaluate people, not only according to their intelligence and their education, their occupation, and their power, but according to their kindliness and their courage, their imagination and sensitivity, their sympathy and generosity, there could be no classes. Who would be able to say that the scientist was superior to the porter with admirable qualities as a father, the civil servant with unusual skill at gaining prizes superior to the lorry-driver with unusual skill at growing roses? The classless society would also be the tolerant society, in which individual differences were actively encouraged as well as passively tolerated, in which full meaning was at last given to the dignity of man. Every human being would then have equal opportunity, not to rise up in the world in the light of any mathematical measure, but to develop his own special capacities for leading a rich life.[8]

The goal clearly is a simple one: to achieve a status system in which every member of society may achieve high status on a socially valued characteristic. Just as the aim of the developers of the Army General Classification Test was to create enough sub-tests of different and important abilities to ensure that every recruit would attain a better-than-average score on at least one part of the test, so would Michael Young's radicals hope to provide tests on which every man might excel and for which he would then receive equal high status. Leaving

aside the question of whether enough significant and different abilities may be identified to make it possible for every society member to score high on at least one sub-scale of some future giant aptitude test (the Army has managed to create enough tests so that 75 per cent of its personnel do better than average on one part), it seems to me highly unlikely that all of the abilities we may identify will ever be accorded equal status or that the pervasive influence of a few central abilities, such as intelligence, will be ignored in the allocation of positions of power and responsibility.

On the contrary, my guess is that although in many areas conceptions of human abilities may become more diversified due to greater occupational specialization, the social value attributed to a few core abilities like intelligence and creativity will grow along with the technological sophistication of the society. The radical's dream therefore appears to be a futile vision from the start, while the intelligence test in all its various forms seems fated to take on even greater significance. Short of the abandonment of testing (and even this might not be enough) or the establishment of a giant society-wide sweepstakes in which some proportion of the highest status positions are distributed randomly, one is forced to conclude that we are indeed likely to move in the direction of a meritocracy during the next two or three generations.

What about the long-range effect of all this knowledge about individual capacities, however diverse, on societal values and individual aspirations? A more rigid class structure, buttressed by the early classification of children according to their abilities, seems likely to have major consequences for such fundamental social values as the

belief that all it takes to succeed in America is hard work and a little luck. The potential consequences of such value changes, in turn, for the productivity, energy, and general level of optimisms of the society are difficult to estimate, but nevertheless these issues appear to merit serious consideration. One conclusion may be advanced with some confidence. As we strive to attain more rational and at the same time more equitable means of evaluating individuals, we must make doubly sure that our techniques, no matter how accurate they may become, do not inhibit the individual initiative on which our social system is based. John Calvin managed to reconcile the notion of predestination and a belief in the benefits of hard work and a virtuous life by suggesting that although no one could be sure who was saved and who wasn't, one could be certain that, since God helped the chosen group to live a virtuous life, if one was not living such a life one was not saved. As we move toward a new form of predestination in our society, one can only hope that we will be able to do as well as Calvin did in devising ways to sustain the motivation of all of society's members, whatever their abilities. If not, we just might have to consider giving up the notion of predestination!

FOOTNOTES

1. Although this paper is explicitly not a research report, the ideas expressed herein have evolved in the context of a program of research on the social consequences of ability testing, which is being carried out at Russell Sage Foundation with the cooperation of Carnegie Corporation of New York, the University of Pittsburgh, and the U.S. Office of Education. The over-all research program is under the direction of Orville G. Brim, Jr., to whom the author is indebted for his assistance in the preparation of this paper. The author would also like to express his appreciation to Wilbert E. Moore, Stanton Wheeler, and David C. Glass for their thoughtful and provocative comments on this topic.

2. For a descritpion of elementary school testing programs in these states, see Goslin, David A., Roberta R. Epstein, and Barbara A. Hallock, The Use of Standardized Tests in Elementary Schools, Technical Report No. 2 on the Social Consequences of Testing, Russell Sage Foundation, 1965.

3. See, for example, Goslin, David A., The Search for Ability, New York: Russell Sage Foundation, 1963, especially Chapter IV; and 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 No. 3 on the Social Consequences of Testing, Russell Sage Foundation, 1965.

4. Goslin, David A., The Search for Ability, op. cit., pp. 14-15.

5. Moore, Wilbert E., and Melvin M. Tumin, "Some Social Functions of Ignorance," American Sociological Review, Vol. 14, 6, December, 1949, pp. 787-795.

6. Ibid., p. 792.

7. Goslin, David A., The Search for Ability, op. cit., p. 131 ff.

8. Young, Michael, The Rise of the Meritocracy, Thames and Hudson, London: 1958. Penguin Books, Baltimore, Maryland, p. 169.