Testing For
Higher Education
TESTING FOR HIGHER EDUCATION

Cultural Perspective and Future Focus

American College Personnel Association
A Division of
American Personnel and Guidance Association

Student Personnel Series
No. 6
TESTING FOR HIGHER EDUCATION
Cultural Perspective and Future Focus

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Student Personnel Series No. 6

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FOREWORD

Dodging brickbats may be good exercise, but it isn’t much fun. These days anyone who uses tests in connection with college entrance had better be ready to duck, because what he will surely have hurled at him are charges such as: Unfair! Unethical! Immoral! Dangerous! These are especially hard to take, because, as anyone knows who has met any number of college admissions officers and high school guidance counselors, these are people who, with remarkably few exceptions, try to be as fair, ethical, moral, and helpful as they can.

James Barclay, and through him the American College Personnel Association, has done these test users a great service by pointing out, in a way that perhaps no one has done before, that they are being blamed for more than they deserve. Drawing from sociology and philosophy, he shows that organized man has controlled his fellows as far back as we can find any trace. Tests are merely another device, and a not-so-new one at that, for helping to accomplish a society’s goals. Test makers and test users are therefore guilty, if they are guilty at all, only of helping a social institution to carry out its mandate.

Then, drawing from science, he shows that the testers could not be as effectively nefarious as charged, even if they wanted to be; the tests just aren’t that good. But he also shows that, when tests get better and better as predictors, they can do no better than pick the kinds of students that colleges want and reward. Maybe the rub is that the test validity studies sometimes reveal discomforting truths about the kinds of students who do best in some colleges and some classes, as, for example, the grinds and the yes-men.

I think that I worry a little more than Dr. Barclay does about the same use of tests to help colleges do better some of the foolish things they already do and will continue to do, with or without tests. Suppose that a college does favor grinds and yes-men. If the tester discovers this and tries to be helpful, he may succeed in reducing even further the number of the very kinds of people whom that college desperately needs, though it doesn’t recognize the need. On the other hand, isn’t “Know thyself” as good advice for colleges as it is for students? If so, perhaps colleges should know more clearly than most of them do just what their values are and what kinds of student behaviors they really reward. If a college decides that it prefers grinds, then why shouldn’t it be more efficient in selecting them? This is one dilemma which test users are in, but which is not entirely of their own making and which they certainly cannot resolve alone.

In his discussion of tests as a counseling tool, Dr. Barclay is clear as can be: the more information and the more accurate the information, the better the client’s decisions. Counselors can be as non-manipulative as they wish, but if they accept the responsibility of helping people make decisions regarding higher education, the counselors are derelict if they do not assist their clients to obtain and understand relevant predictive data. It has been said that nothing speaks louder than a fact. The College Entrance Examination Board, the American College Testing Program, the Georgia statewide validation studies and other programs have added quite a few facts to the pool from which high school students and their parents can draw when making some of the vital decisions in their lives.

Dr. Barclay and ACPA have rendered a significant service in bringing together in one place the contributions of several disciplines that bear on the important issues in college admissions testing. From philosophy has come a rationale, from sociology a framework, from psychology a scientific method and its results, and from education the implications. Let the brickbat-throwers accept the challenge, if they will, of dealing with all the relevant issues and questions: Does society have a right to control? Does the community
benefit from certain controls? If so, is there a more equitable and more efficient way to do the job?

We may hope that all of us—critics, testers, counselors, and citizens—will now move on to a better informed and more mature level of discourse on the subject of testing for college. A good model has been placed before us: make a scholarly and objective study of the pertinent factors, weigh the factors in relation to one's values, and finally take a firm but responsible position. This monograph has done just that.

Leo Goldman

City University of New York
PREFACE

This monograph is concerned with the important problems of the transition of hundreds of thousands of high school youth to the collegiate setting. It is addressed to high school personnel, college admissions officers, counselors, and all who are interested in higher education. It is the purpose of this monograph to examine the role of testing as a special modern technique of assessment used in college admissions. The concern, however, is not so much with the technical aspects of testing theory and test construction, but rather with the use of tests as predictors of success in college, the clarification of criteria used to evaluate effective human behavior in this setting, and the broader implications of cultural and philosophical dimensions of testing and test usage.

I am indebted to both the former and present members of the American College Personnel Association Monograph Commission for their suggestions that improved the early drafts of this monograph. Dr. Margaret Ruth Smith, Chairman of the Commission, should be singled out for special mention because of her encouragement and help in the preparation of this manuscript. I am also appreciative of the suggestions provided by many friends not on the Commission who read the manuscript.

JAMES R. BARCLAY
Chapter 1

The Problems and Scope of Testing for Higher Education

This spring and for many years to come, hundreds of thousands of high school students will assemble in classrooms or auditoriums to take tests. Many others will make trips to regional testing centers. The results of these tests, reported to them later, will be the bonus report card that they will earn as a result of their high school education. Whether these boys and girls live in the San Francisco Bay area of California, in suburbs of New York City or Detroit, in small towns of Idaho, Florida, or Kansas, these testing results will play a profound role in their future. They will all have to face similar kinds of problems. They will want to evaluate their liabilities and assets in terms of both achievement and personality. They will have to make a choice of a college or university, a junior college or technical school. They will have to decide whether to attend public or private institutions, where and how to obtain financial aid, and also decide on a vocational objective or curriculum. In making these decisions they will have to weigh their own aspirations, motivations, and accomplishments against the opinions of their peers, the advice of their parents, and the guidance of teachers and counselors. Above all, they will have to be able to shift their plans as some avenues of higher education are closed to them through rejection of applications or curtailment of enrollments.

Parents will be concerned with the decision-making process of their children. They may suggest institutions that represent status goals for themselves. Perhaps they will wish their children to attend their alma mater. The occupation of the father, the family's status in the community, and the real monetary involvement may be factors in the direction of their influence exerted on their children. Professional parents will usually want their children to attend a college or university. The adults of disadvantaged background may not be aware of the need for higher education, the fact that their children may be capable of benefiting from higher education, or that it is available to their children. In between these two groups of adults will be the vast number of American parents who have aspirations for their children and whose striving towards upper-middle-class values includes sacrifices to see that their children obtain a higher education.

High school personnel will also have a number of problems. Along with increasing enrollments, heavy teaching schedules and many extra-curricular assignments, they will be called upon to help their students make wise decisions about future education. Students will ask them specific questions about specific institutions. How will they answer? Test scores may be available, but how can they interpret these test scores to students in a meaningful way? Counselors will conduct group and individual counseling sessions, but once again, the questions that they will be asking are often specific ones: "What do I need to be an engineer?" "Do you think law is a good career for me?" In addition to attempting to solve these kinds of problems, the high schools will be scheduling assemblies for representatives of various colleges and universities to speak to students and recruit them. Scouts for institutions will be looking at promising athletes or exceptionally gifted students. Grades, final examinations, graduation rehearsals, and dozens of other activities will impinge still further on the time and resources of the high school. Further, except for special contacts with institutions or talks with returning college students, the high schools will often be uninformed of how their graduates are doing in comparison with other area high school graduates. Institutions of higher learning will be requesting transcripts and personal recommendations. How will the high school personnel make their recommendations? Will these recommendations be used in a meaningful way in college admissions? These and other questions plague the high schools.

Another group of concerned people are the college admissions officers. They will have a variety of headaches. How will they evaluate transcripts from different high schools all over the nation or region? How much reliance should be placed on the recommen-
The problems center on understanding and communication. Understanding is needed so that test information can be used meaningfully. Communication is needed so that all parties concerned can have adequate bases for decision-making. Specifically, colleges, high schools, and students must be able to evaluate what are the criteria of success in a collegiate setting. This is to state that we must somehow determine what is the nature of effective human behavior in differential collegiate settings and how it can be measured and communicated. For once the criteria have been established, then predictors can be developed. This then is the task that confronts higher education as well as the total educational enterprise.

The Question of Testing for Higher Education

The Nature of Testing

Testing in its scientific format is an attempt to measure objectively some aspect of behavior whether it be achievement, intelligence, personality, or learning. It is a means of evaluation, prediction, and control of human behavior. Because of its ability to transcend local cultural dimensions, and because of the facility with which it can be used as a criterion of individual differences, it has become the chief means of evaluation used in college admissions and college selections. Testing is based on the postulates of the scientific method. It assumes, for example, that there is generally a constancy in human perception, that there are causal relations existing between test stimuli and responses made, and that these responses ordinarily represent the true judgments of the individual taking the test. It utilizes a statistical method to arrive at generalizations that are the testing equivalent to laws in the physical sciences. Rigorous standardization of testing requires that the items in the test be constructed by experts who are deemed to have comprehensive knowledge of the field under consideration. Certain items are selected and tested to learn whether they do indeed measure whatever characteristics they are deemed to measure. Once the complex problems of developmental variations, environmental differences, and adequate sampling have been worked out, large representative populations are included in the norming process. By item analysis, the content of the test is screened and re-analyzed. The entire approach is based on a statistical theory relating to large populations and the assumption of normality of distributions. The end result of the test is to provide a measure of some characteristic in the area for which it was constructed.

A good test is both valid and reliable, i.e., it measures what it purports to measure and obtains relatively similar results on re-testing. One purpose of
testing is to obtain comparative data on individuals as related to groups. This purpose of testing lends itself to counseling and advising in terms of coursework and planning. It also provides information about the relative standings of individuals in terms of achievement, intelligence, or other variables. Another purpose of testing is for prediction or forecasting. This forecasting aspect of testing is based on the assumption that the best means of prediction of future behavior is an understanding of present functioning. Prediction in this sense is a concept related to probability. Prediction is never postulated of individuals or seldom of groups except under careful qualifying circumstances.

Testing for Admissions to Higher Education

Test-taking has become the chief means of gaining access to higher education. Because of the complex characteristics of other variables in American culture, the objective test score has become the chief means of evaluation of youth for college admissions. Grade-point averages as an alternative means of assessment are subject to local marking practices, the size of the school, and the quality of faculty as well as other factors. Faculty recommendations, often fail to show the bases or criteria of evaluation so that they are seldom reliable means for admissions. Interviewing, grading of specimens of essay writing, and other more personalized means of assessment seem out of the question in terms of large masses of students. Testing has provided the single most stable measure of individual differences. It has been found to be functionally useful even within the dimensions of opposing cross-currents and conflicting goals in education. Testing for higher education has subtly removed the evaluation of the educational product from the judgment of both the local high school community and the teaching profession, for in terms of college admissions it is the test results that tend to evaluate the educational product. Testing operationally has by-passed the age-old argument about whether education is an art or a science, for it reduces the analyses of the educational enterprise to concrete quantitative results. It has tended to ignore much of the question of whether education should be active or passive, content-oriented or focusing on process, for its scores are clearly related to memory recall of both content and functional procedures. But at the same time, it has been found to be the most economic, pragmatically sound, and efficient method of evaluating the common learnings of thousands of American youth in terms of college readiness and admissions.

Institutions of higher learning ordinarily use test results in two ways: (1) as a means of placement in various sections such as remedial ones and honors groups, or (2) as a selection instrument. This is not an exhaustive list of how test results could be used, but simply how they are most commonly used. Institutions that use testing for placement purposes usually accept all students either as a matter of policy or by state mandate. The latter institutions are restrictive in their enrollments and use test scores to determine cut-off points. A large number of institutions are now becoming more selective in their use of test scores. This selectivity may be based on the upper 10 per cent of graduating seniors, the upper third or upper half of these graduates, or on some other formula. The criteria used in making these determinations may be based on local or state policy. Private colleges and universities also may limit their enrollments further by quota systems wherein enrollments are limited on the basis of geographic regions or even national-international quotas.

The chief testing instruments used in about 80 per cent of American institutions of higher learning are the tests provided by the Educational Testing Service which markets the College Entrance Examination Boards and other instruments, and the American College Testing Program. The vast majority of American youth take one or both of these testing programs as a part of their preparation for entrance into college work. The test scores they obtain on one or more of these instruments serve as very powerful determinants in their access to certain institutions.

The Attack on Testing

The actual or suspected power that testing exerts over the educational enterprise has resulted in a number of attacks on the use and practice of objective testing. The subject has become a popular one in literary circles. There have been a number of rebuttals relating to the charges against testing (Barclay, 1964; Brimm, 1965; Stalnaker, 1965). Though many of the charges are patently absurd, such as the allegation that Freudian psychiatry, UNESCO, and "brain-picking" tests together are a plot to indoctrinate American youth who may be capable of sweeping America into the Marxist-Communist orbit some time in the future, there are other more serious charges. Dr. Donald Barr, Assistant Dean of the Faculty of Engineering and Applied Science at Columbia University, attacked multiple-choice tests in American education (1963). In his article he singled out the Scholastic Aptitude Tests of the Educational Testing Service for particular censure. He suggested that the answer choices called for are the mediocre and commonplace ones and actually penalize the individual with creative ability. He also indicted the Minnesota Multiphasic Test of Personality for creating what he termed conflict situations in the minds of people who believe in matters such as the "second coming of Christ." An article by Fred Hechinger, reporting research done by Dr. Benno G. Fricke,
Assistant Chief of the Evaluation and Examinations Division of the University of Michigan's Bureau of Psychological Services, also condemns the Scholastic Aptitude Tests for being inbred in that when new items are selected they are designed to measure the same old things as the former items. He suggested that specific examinations be given in each subject matter field (1963).

A book by Martin Gross (1962) makes interesting reading for the individual concerned about the popular misperceptions of testing and misuses of testing. One chapter speaks of the school counselor and school psychologist. Gross criticizes school counselors as untrained people or classroom teachers who have taken a few courses in counseling and have “empathy.” He suggests that counselors often use tests in order to “find something to talk to students about.” Gross documents many of his statements by references to specific schools or corporations where problems exist. He winds up his discussion by an examination of whether tests are scientific or a mythology.

Even within the professional circles of counseling and college admissions, test data and testing practices are under fire. At a meeting of the American Personnel and Guidance Association at Minneapolis (1965), several group meetings regarding testing and the prediction of academic success were characterized by bitter exchanges between counselors, university teaching personnel and admissions personnel. The gist of these exchanges revealed the frustration that all groups have with each other and with the present status of testing.

The criticisms of testing usually fall into two categories. There are those who would wish to do away with testing altogether. Usually these are individuals who are basically unfamiliar with the scientific rationale of testing and its usages. Often these individuals are emotionally involved and have some kind of a “hidden agenda” wishing to obtain a little mileage out of yet another attack on a popular subject. The other group of critics are those who point up a serious problem that needs to be considered as objectively as possible. The first group often attacks testing using an argument which boils down to this: that because abuses or problems are found in a few instances the entire testing movement is discredited. Their approach to the testing question smacks of a dichotomous relationship in which everything must be either black or white, true or false, etc. Frankly, it is extremely difficult to debate complex issues involving interpersonal theories of perception, probability and the normal curve, statistical methods of reliability and validity, item analysis and the concept of prediction, on the same plane with irrational arguments, ingrained prejudice, and personal hostility reinforced by many decades of myopic perspective. In its extremist form this criticism of objective testing would advocate the complete abridgment of this form of behavior assessment. What would be the alternative? This would be the return to judgments based on subjective criteria whether empirically derived from individuals or groups of individuals or simply by personal intuitive means. The history of the mental hygiene movement is replete with case histories of individuals who spent their lives in mental hospitals or institutions for the mentally ill or mentally retarded because someone made a subjective judgment about them. The case is exactly parallel to that of medicine. Should medical doctors not try to save lives even though their present tools, skills, and drugs are still inadequate? Because there have been a few medical quacks and a few proved cases of medical malpractice and error does this mean that we should all go back to the witch doctors? The answer must be a resounding “no.” In testing and the field of assessment of interpersonal relations, our tools and techniques are still quite crude. We are at the state of development in the social sciences that Newton represented in the physical sciences. We know certain basic facts, but we are still incapable of assessing the total complexity of the phenomena we deal with in a way meaningful for prediction and control.

The criticisms of the second group should be looked at closely. Barr’s criticisms of objective tests are partially valid. It is quite possible that creative students who are accustomed to patterns of divergent thinking might find more plausible alternatives in a multiple-choice test than the conventional “correct” answers. But this criticism does not invalidate the whole concept of objective testing. Again, it is unquestionably true that test construction reflects certain philosophical, psychological, and cultural biases on the part of the test constructors. The theoretical frame of reference that relates to abnormal psychology and maladjustment is particularly suspect. As Stern, Stein, and Bloom have pointed out (1956), the assessment of human behavior has developed through a number of stages. From the earliest approach that related to the general measurement of intellectual skills and achievements, assessment theory began to include the will to achieve and was characterized later by the confluence of Freudian theory and personality theory with measurement techniques. The present stage of development is more concerned with the specific nature of individual behavior repertoires and an evaluation of the social or cultural context of learned behavior. As in many other areas of science there would appear to be a lag in the construction of testing instruments that are more in accord with this recent approach to behavior assessment. This is understandable in terms of the time, ef-
fort, and monies involved in test construction. But the continued reliance on testing instruments that are more characteristic of the 1940’s and 1950’s may be one reason for the continuing attack on testing.

**What Ails Testing?**

Much of the criticism of testing can be ascribed to a lack of knowledge regarding testing methodology and interpretation, and the communication of this knowledge. As more and more complex methods are used in testing procedures and computers are brought into the total picture, even the very terminology is becoming more mysterious. Further, the basic assumptions and postulates that underlie the rationale of testing are often unknown. As greater pressure is felt to define criteria of effective behavior in differential settings, the global situation becomes more involved. The research reports that the testing companies put out are not always intelligible to high school personnel or in some instances to admissions personnel. As a result, test results are often treated as quasi-absolutes. Somehow, the information available will have to be translated more effectively. Mathewson has pointed out how important this is: (1955)

> The time is fast approaching, if it is not already here, when testing and measurement can no longer be put in the hands of persons with only a modicum of training in psychometrics, statistics, and measurement. Indeed, it now looks as if the growing significance of testing as well as the prospect of the emergence of more selective functions in American education might require the development of new measurement, not to say actuarial functionaries in our pupil personnel work.

Hill (1964) has emphasized the same point in the public school setting, indicating that the gap between research and actual practice has become so large that it may be necessary to develop an intermediary group of individuals whose chief function will be to relay knowledge obtained from scientific experimentation to the high school counselor and teacher.

Perhaps this is an implied task for those who are educating college student personnel workers as well as school psychologists. Someone will have to become expert in the interpretation of research findings not only in terms of the broad field of education, but in regard to this specific problem of testing for higher education. The translation of information must be relayed not only downwards to the high school personnel and administration, but upwards to university faculty. For all of the talk about criteria and predictors of success in the collegiate setting as well as the high school environment depends on the development of some quite specific criteria of effective human behavior. We must address ourselves to the questions of determining what sorts of behavior and characteristics relate to academic and personal achievement. That this is difficult cannot be denied. It is largely because those directly concerned with education have failed to deter-

mine these criteria of effective behavior that testing has tended to rely on the overall grade-point average in college work as the major criterion. As a result, testing has tended to become the tail that wags the dog. In the absence of a clear philosophical determination of what constitutes effective behavior in global or specific settings, there has been scarcely any other alternative to serve as a criterion other than grade-point average.

Fishman and Clifford (1965) have recently provided a rationale for re-evaluating testing programs in and for higher education. They have suggested that though tests at present afford the clearest operational standards of criteria of educational excellence, it is necessary constantly to examine the cultural values that testing presumes to serve and so often obscures.

Such comparisons may disclose that the faults of American education cannot be properly laid at the door of mass testing but should be squarely attributed to the purpose (or surrender of purpose) that tests are asked to serve. Thus, the mechanization of education that so many now fear is not really attributable to tests or to the scoring machines, but, rather, to the pursuit of the standard mind and the standard man which many of our institutions and organizations knowingly or unknowingly glorify. Our country has long needed a serious analysis of its educational goals and methods . . . Those who lead us away from the head-on pursuit of such an analysis into a consideration of testing principles and procedures are hardly doing us a favor.

If Fishman and Clifford are correct, then one of the fundamental faults in modern higher education has been to accommodate itself to testing instruments rather than to define operationally what values it wishes to perpetuate. This cannot be done in the high sounding terminology of reports prepared by administrators for accreditation purposes. Rather must it involve the total college environment, faculty expectations, and student perceptions. For unless the objectives of the college education can be translated into operational concepts relating to effective human behavior, it is useless to attempt to clarify criteria of assessment further. And unless assessment criteria can be clarified, predictors of student success can scarcely be improved.

**References**


Fishman, J. A., & Clifford, P. I. “Mass-Testing and


Chapter 2

The Present Research Perspective on Testing for Higher Education

The particular focus of this chapter is on the question of criteria and predictors used in testing for higher education. The discussion here will not be concerned with an analysis of the specific validities and reliabilities of tests commonly used in higher education, but rather with the research that has been done on the subjects of predictors and criteria of collegiate success. By criterion is meant the standard that is used as a measuring level. Just as a ruler is used to demarcate length in terms of inches, so a criterion is a standard to be used in some kind of assessment. By predictor is meant those specific test scores or combination of measurable characteristics that relate to the criterion either negatively or positively.

Predictors and Criteria of Collegiate Success

The research relating to predictors of success in the collegiate setting has identified three present combinations of predictors and three combinations of criteria. For both predictors and criteria there can be intellective ones, nonintellective ones, and combinations of both. Intellective predictors are those which tap essentially verbal and abstract abilities and generally indicate how well certain specific types of information and problem-solving techniques have been mastered. In intellective predictors a good deal of emphasis is placed on the student's ability to recall facts and procedures in a way that can be scored objectively. The common intellective predictors that have been used are aptitude and intelligence test scores, achievement scores, rank in high school graduating class, and high school grade average either in one subject or globally considered. Nonintellective predictors take into consideration various theorized dimensions of personality, motivation, and interest patterns. A variety of such tests have been used, including personality and motivational tests, interest inventories, interviews and personal ratings, biographical information, study habits inventories, self-appraisals and peer nomination techniques, adjective checklists, semantic differentials, and measures of self-concept.

Many of the current testing batteries were not specifically designed to measure effective human behavior in the collegiate setting. That they measure something is undoubtedly true, but the point is that in many instances, particularly those tests dealing with nonintellective factors, the connection between these instruments and effective collegiate behavior is unclear. However, in all fairness to many investigators, the problems in designing adequate tests and obtaining adequate test predictors are related to the question of determining adequate criteria. The fact that the colleges and universities place their overwhelming confidence in a specific form of intellectual criterion, the academic grade-point average, is both understandable and damning to the effort of researchers to increase predictive and longitudinal validity.

This reliance on intellective criteria is understandable because college faculties are very prone to accept intellectual achievement as indicated by the grade-point average as the criterion of college success par excellence. Faculty members all know, or think they know, what a grade means. Added to this is the difficulty in obtaining any reasonable consensus from faculty members on what constitutes a nonintellective criterion of college or university success. Some suggestions that have been made for nonintellective criteria of collegiate success are participation in extracurricular affairs, feelings of satisfaction with college experience as rated by the student or others, peer group judgments, leadership ratings, creativity ratings, aspiration statements, clarification of vocational goals, dropout status versus staying in, religious, political and social attitudes and values, and post-college criteria such as listings in "Who's Who," admission to or success in graduate school, membership in professional societies, publications, and community status. When this list of nonintellective criteria is reviewed, it is understandable why the institutions of higher learning
would instead tend to place high confidence in the grade-point average. It is easily obtained, pin-points success in terms of a concrete criterion, and provides an immediate recognition of those values in which college and university communities tend to place most confidence.

**Intellective Predictors**

The most comprehensive recent report of research relating to predictor-criterion combinations in higher education is that of Fishman and Pasanella (1960). In the decade from 1950-60, they identified 580 studies relating to various combinations of intellective and nonintellective predictors and intellective and non-intellective criteria of academic success. Of these, 408 or 70 per cent were concerned with the relationship between intellective predictors and intellective criteria in colleges and universities. By way of illustration, Fishman and Pasanella’s table regarding the types of research that have been done in the past decade should provide some additional information.

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*Less than 1 per cent.
**Data nonadditive.

*Taken from the Review of Educational Research, 30, 4, October 1960, p. 299.

This study by Fishman and Pasanella reviews the significant research done in these many studies and points out that the intellective predictors in 263 studies (using the high school record by total grade or rank in class) correlate roughly at .50 with comprehensive freshman-year intellective criteria. They report also that in 62 studies of relationship between scores on English or reading tests and intellective criteria, the global average median correlation is .47. Some 216 studies which use a multiple-correlation technique on intellective factors against intellective criteria resulted in median correlations of .62, with a range from .37 to .83. These findings using predictors from high school are roughly equivalent to those results obtained on the tests of the two major testing corporations. The advantages of the test batteries are that they provide a common index or indices of achievement that can be applied to all students. The high school grade-point average or rank in class is subject to the many problems of evaluating high schools since grading practices may differ and there is no guarantee that a rank of 10 in a group of 50 seniors is comparable to a rank of 10 in a group of 200 seniors. Bloom and Peters (1959) attempted to find a method for increasing correlations between high school grades and academic success on the basis of a scaling procedure that entailed statistical correlations for intra-school and inter-school nonequivalence of grades. Though their study suggested that there was much more real predictive power in high school grades than had been tapped, and that nonintellective factors have less independent contribution to make to the total predictive power, Lindquist (1963) failed to find that their method was feasible in dealing with the less selective schools of the Midwest.

**Nonintellective Predictors**

A number of nonintellective predictors have also been used in estimating college success. Fishman and Pasanella (1960) reviewed research that had been done with those predictors. They mentioned 26 studies that had utilized the Rorschach, the Minnesota Multiphasic Scale, the Manifest Anxiety Scale, and others. They reported that correlations with global intellective criteria ranged from .01 to .62 with a median correlation of .22. In 25 studies with study-habits tests and inventories, such as the Brown-Holzman Survey of Study Habits and Attitudes, there were correlations obtained between .26 and .66 with college freshman grades. Bendig (1958) found that the Edwards Personal Preference Schedule increased multiple correlation .09 in situations where this scale was added to the intellective factors. The general findings of Fishman and Pasanella, however, would indicate that during the decade from 1950-60, comparatively little was added to the prediction of academic success by the inclusion of nonintellective predictors.

In recent years it would appear that some "breakthroughs" have taken place in the study of predictors of academic success. One of these is the finding that women are more predictable than men (Seashore, 1963). Another is the fact that students from disadvantaged homes and school environments, such as the Southern Negro, often defeat predictions based on Scholastic Aptitude Test scores when they attend Northern universities (Clark, 1956). Earlier research that pointed out the fact that the highest multiple cor-
relations between high school predictors and collegiate success tended to occur in the Southwest and West (Fishman and Pasanella, 1960), and the observation of Fricke (1956) that, in general, high correlation coefficients indicate weak students are being overtaxed and strong students not sufficiently challenged, may have suggested to certain researchers that restriction or non-restriction policies in admissions were differential factors to be further investigated.1

Specific reference is made here to the study of Holland and Nichols (1963) in which these investigators found that there was an enormous drop in multiple correlations for students of high ability who were selected as a result of pre-selection restrictions on talent. In a study involving 154 variables with 275 female and 250 male subjects, they found that when academic ability was held constant (the subjects were all finalists in the National Merit Scholarship Examination), college or university grades were not significantly related to scores obtained on the Scholastic Aptitude verbal or mathematics tests.

These results would appear to be due to the effectiveness of restriction on the range of ability. Since the group was highly homogeneous in intellective ability, it was reasoned that the variance that might be observed could more properly reflect nonintellective variables. The nonintellective factors that appeared as predictors of college grades grouped themselves into two clusters which were basically identified as (1) perseverance and motivation to achieve, and (2) conformity to basic socialization and accepted values. Though a number of specific findings were identified as nonintellective predictors of success, the accomplishment of Holland and Nichols' study was to demonstrate that nonintellective factors can emerge as significant components in the prediction of academic success, once restrictions are made on the range of academic ability. This would seem to indicate that the use of certain tests such as the College Boards has value chiefly in the selection of a student body. Once that student body has been selected there is little or no significant relationship between the scores obtained on the testing and the achievement level in the university. The practice of admissions officers in arbitrarily determining a cut-off point on an entrance battery seems utterly indefensible if this is the only criterion used. French (1964) of the Educational Testing Service found that the results of Holland and Nichols were confirmed in studies which he reported, and suggested that for high-level students the substitution of a test of insightful Reasoning and Data Interpretation might increase the multiple-correlation coefficient for high achievement students.

Other studies have also tended to confirm Holland and Nichols' findings. Gough and Fink (1964) further substantiated the notion that a special theory of achievement might be relevant for certain groups of individuals. In a study with the California Psychological Inventory on a group of average students, they found that certain dimensions of the inventory were related to achievement. One of these had to do with internalization of values and sensitivity to issues involving external controls. A second factor appeared to be related to motivation, and a final one to involve a preference for order and stability. "The pattern is one of positive personal effectiveness coupled with diligence, perseverance, and restraint. It is not a pattern of creativity or innovation, but rather that of constructive adaptation to a world in which one's circumstances are modest and one's destiny limited." (p. 380)

A number of studies have also been done utilizing Cattell's 16 Personality Factor Test. A few relevant ones might be mentioned here. Hadley (1954) investigated the relationship between a battery of intellective and nonintellective scores and the grade received in practice teaching at a state teachers college. Groups were compared using the criterion of grade received in practice teaching. Only the "A" and "C" groups were compared. Though a number of intellective measures were used, including the high school rank in graduating class, the grade-point average in college, a number of Cooperative test scores, and the ACE score, none of these scores revealed significant "i" scores in the comparison of data. The 16 Personality Factor Test, however, revealed significant differences between the two groups on F, G, and N factors. For example, the "F" factor is described as "Surgency versus Desurgency" and this factor on the surgency end of the distribution is described as talkative, cheerful, placid, frank, expressive, quick and alert. The opposing end of the distribution is described as silent, introspective, anxious and incommunicative, more persevering, determined and responsible, and less sophisticated. The results of this study suggest that success in a task-oriented situation such as practice-teaching depends largely on anxious perseverance and naive orientation to reality.

Holland (1960) also used the 16 Personality Factor Test in a study designed primarily to explore the usefulness of nonintellective factors in predicting college grades. Using a sample of 641 males and 311

1The reasoning here is that institutions in the West and Southwest serve wide ranges of students in terms of scholastic ability. In view of the distance involved, and because of economic factors, many students attend nearby institutions. High correlations between predictors and college grade-point average mean that low ability students are making low grades and high ability students high grades. The accommodation of faculty in these institutions to the nature of the student population would then support Fricke's contention.
females who were drawn from 7,500 finalists in the National Merit Scholarship testing, correlations were obtained between these variables and college freshman grades. Holland’s findings suggested that some of the nonintellective factors of the 16 Personality Factor Test such as Superego, Persistence, and Deferred Gratification were meaningfully related to college success as measured by the criterion of academic achievement.

These studies tend to confirm much of the research that Cattell and his numerous associates have reported regarding the 16 Personality Factor Test. Cattell believes that an absolute limit of approximately .60 is being reached in correlation studies between academic predictors and academic criteria of success. (Cattell, 1964). Even if specific information regarding primary ability measures are added, increasing the correlation to .70, this leaves barely half the variance of the criterion accounted for. He provides formulae for academic success in his manual. In general he suggests that a student may be expected to do better in academic achievement as he possesses more general intelligence (Factor “B”), conscientious persistence (Factor “G”), self-sufficiency (Factor “Qs”), and will power (Factor “Qg”).

Studies with other instruments have tended to substantiate the findings of research done with the California Psychological Inventory and the 16 Personality Factor Test. Gough (1960) found that an adjective checklist is an effective means of personality assessment and that students rated high in terms of potential success originality, and personal soundness tended to be possessing of traits such as coldness, conscientiousness and responsibility. Adjectives associated with creativity were those such as active, ambitious, capable, clear-thinking, efficient, energetic, enterprising, imaginative, intelligent, wide interests, organized, realistic, resourceful, sensitive, and talkative. Crites (1963), in a study of seven motivational factors and the occupational scales of the Strong Vocational Interest Blank, found that the kind of vocational interests chosen is related to motivational factors and that each interest area on the SVIB is associated with a different motivational pattern with the primary motivational factor which differentiates interest types being that of a bipolar one of system versus social service. Blum (1961) utilizing the Edwards Personal Preference Schedule and a security inventory found that a desire for security was a trait that could be identified and was positively related to the actual choice of a job situation.

Recent Developments in Testing

Both major testing companies continue to explore ways and means of developing more sensitive testing instruments. The American College Testing Program has been experimenting with a battery of items that includes not only aspirations, but also competencies and recognitions (Holland, 1965). In addition, several recent tests merit consideration here, though their newness precludes any kind of judgment at this time. One very promising instrument is the OASIS which has been developed at the University of Michigan under the auspices of Dr. Benno Fricke. The OASIS is reported to be designed specifically for two groups: (1) those who make decisions with students, e.g., counselors in schools and colleges, and (2) those who make decisions about students. There are 14 scales in the OASIS which relate to two different areas. One area shows how the student took the test (e.g., with carelessness or serious intent). The other area assesses achievement, motivation or creative potential. Fricke (1964) maintains that the OASIS measures attributes that are not measured by standard tests of ability. He believes that the creative personality scale is one of these dimensions and also suggests that the OASIS may have considerable relevance for identifying potential college dropouts. The other test that should be mentioned is the OPI (Omnibus Psychological Inventory) developed by McConel and Heist at the University of California (1965). This instrument too would appear to have promise in the problems of college admissions.

To summarize the developments that have taken place in all of the test instruments presently being revised and designed would be beyond the scope of this monograph. It would appear, however, that there exists a general consensus among researchers that intellecutive predictors as such have reached a plateau in terms of forecasting success in higher education. Significant trends in current research include the recognition that once groups of ability levels are controlled, nonintellective factors account for an increasing degree of prediction. Further, the specific creation of a test battery such as the OASIS represents a trend in test construction towards the building of testing instruments designed especially for admissions and counseling problems. The recognition that a combination of intellectual and nonintellective predictors used in differential ways may result in substantial gains in overall prediction is perhaps the most important development.

Research in Improving Criteria

The accompanying problem in improving the predictors of success in pre-college testing is the definition of more adequate criteria of effective human behavior in the college setting. Though the question of criterion construction and assessment is by no means settled, as will be indicated in the subsequent chapter, there are three developments that have occurred in recent research that may lead to more operationally precise predictors. These are: (1) the use of negative criteria,
i.e., dropout status, (2) the studies in the assessment of the collegiate environment or “press,” and (3) efforts to communicate college expected grades through state-wide or testing company efforts.

**The Negative Criterion**

The first of these approaches is the use of the criterion of college continuation versus dropout status as a measure of academic success or failure. This type of criterion, though essentially dichotomous in terms of success or failure, has been found to be related to certain noncognitive personality factors. Truaxdell and Bath (1957) found that selected personality measures were related to dropouts in the engineering curriculum of a college. Drasgow and McKenzie (1958) related MMPI scores to a college graduation versus nongraduation criterion and found that nongraduates were significantly higher in the maladjustment direction on eight of the nine clinical scales. Brown (1960) found that male and female dropouts were different from those who remained in college, with the dropout males described as more “irresponsible and nonconforming” and the females as “withdrawn and depressed.” These findings were obtained from scores on the Minnesota Counseling Inventory. Heilbrun (1962, 1965), using the Adjective Check List of Gough, and controlling for various ability groupings, found that female subjects who dropped from colleges were reliably higher on heterosexuality and change, and lower on achievement, order, and endurance. In the later study he found that variables which distinguished male achievers were primarily task-relevant achievement, endurance, change and nurturance. Variables identified with high achieving females were nurturance, exhibition, autonomy, aggression, introspection, abasement and endurance, primarily of a social interaction character. Simms (1964), using Osgood’s semantic differential technique, tested the entire entering freshman class at the University of Colorado in 1957 and followed students through to either graduation or dropout status. His findings were similar to Heilbrun’s. Though a number of other significant differences appeared between the two groups, he found mainly that attitudes toward authority, sex, social fraternities, and moderate drinking were factors predictive of success or failure in the academic environment. Dropouts were more resistant in their attitudes toward authority and showed a more favorable attitude towards sex, social fraternities, and moderate drinking.

These studies point up the utility of using the negative criterion of dropout status in predicting success in higher education. Studies involving this criterion provide insight into personality characteristics that, aside from academic potentiality or ability, appear to play an important role in collegiate success despite the nature of the institution or curriculum. The majority of these studies would seem to indicate that as long as institutions of higher learning continue to emphasize academic achievement and conforming attitudes towards authority, habits of self-discipline and self-control will be necessary concomitants of success in the college setting.

**Studies in Collegiate Environment**

Another promising approach in the evaluation of criteria of behavior in the collegiate setting is that which has sprung from studies in vocational choice and the assessment of college environments. Super (1951) suggested the broad guidelines for some of this research. He stated that the appropriateness of an individual’s choice in a given occupation or vocational curriculum depends on the particular configuration of his abilities, personality characteristics, and interests as measured against the specific demands of a given vocation. Tiedeman, Bryan and Rulon (1953) and Tiedeman (1954) devised a method of reflecting choice patterns by the use of a centaur score. This is explained by Cole, Wilson and Tiedeman as a “percentile-type statement which is a function of the probability that the alternative chosen by an individual with a particular pattern of traits will be of a specific kind. The higher the centaur score, the higher the relative frequency of a pattern of scores among those for a group of individuals who have made a specific choice.” (1964, p. 122).

In determining a criterion against which vocational choice patterns could be measured, Cole, Wilson and Tiedeman used the duration of the pursuit of an elected goal. They presumed that individuals who choose alike are alike, and that the choice remains as it originally was for a period of time in direct relation to the number in the groups with identical characteristics. Following two groups of students at Harvard and Rochester they found that changes in curricula were more pronounced at Rochester than at Harvard, and that the majority of “emigrants” changed to closely related fields rather than to distant fields. The general trend seemed to indicate that students left the field of natural science and migrated to social science and the humanities fields. Though clear patterns could not be postulated on the basis of this particular research, there are indications that this approach may result in clarification of vocational choice theory.

The same problem has been approached from another point of view, i.e., the scaling of the global environmental “press” associated with faculty demands and expectations as well as institutional aspirations. This approach has been taken by Pace and Stern

The technique described in these studies has been called the "environmental assessment technique" (EAT) and is based on the rationale that each learning environment produces a differential "press" on students. An important corollary of this procedure is that each of several curricula within an educational institution exert a different type of "press" in terms of characteristics that appear to be rather uniquely ascribed to these curricula. The basic notion is that a major portion of the environmental forces are transmitted through faculty and that the character of the social environment is dependent on both the nature of the faculty and the characteristics of students coming to a particular curriculum.

Underlying the technique itself is a theory of vocational choice developed by Holland (1959a, 1959b). This theory suggests that people who are successful in different occupations tend to differ in basic personality attributes. Holland has identified six basic personality types and corresponding vocational curricula. The following table may assist the reader in understanding Holland's approach.

Table 2
College Major Fields Corresponding to Each of Six Personal Orientations (according to Holland)

<table>
<thead>
<tr>
<th>Orientation</th>
<th>Description</th>
<th>Relevant Major Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>Realistic</td>
<td>&quot;Masculine, physically strong, unsociable, aggressive . . . prefers concrete to abstract.&quot;</td>
<td>Agriculture, agricultural education, physical education, recreation, industrial arts, engineering, forestry, trade and industry.</td>
</tr>
<tr>
<td>Intellectual</td>
<td>&quot;Task-oriented, intrachoice, asocial, prefers to think through rather than act out; needs to understand.&quot;</td>
<td>Architecture, biological science, geography, medical technology, pharmacy, mathematics, philosophy, physics, physical science, anthropology.</td>
</tr>
<tr>
<td>Social</td>
<td>&quot;Socially receptive and responsive, feminine, needs attention, avoids intellectual problem-solving, orally dependent.&quot;</td>
<td>Health education, education of exceptional child, mental retardation, speech, speech correction, education unclassified, nursing, occupational therapy, scholastic philosophy, social science, American civilization, sociology and social work.</td>
</tr>
<tr>
<td>Conventional</td>
<td>&quot;Prefers structured numerical and verbal abilities and subordinate roles, conforming, identifies with power externals and status.&quot;</td>
<td>Accounting, secretarial work, commercial (general and unclassified), business education, library science, economics.</td>
</tr>
<tr>
<td>Enterprising</td>
<td>&quot;Verbal skills for dominating and selling, leading others . . . orally aggressive.&quot;</td>
<td>Hotel and restaurant administration, hospital administration, history, international relations, political science, foreign service, industrial relations, public administration.</td>
</tr>
<tr>
<td>Artistic</td>
<td>&quot;Asocial, avoids problems which are highly structured or require gross physical skills . . . intrachoice, need for individualistic expression.&quot;</td>
<td>Art education, music, music education, English, journalism, fine and applied arts, foreign languages, and literature (all fields).</td>
</tr>
</tbody>
</table>

Utilizing the above categories, Astin and Holland (1961) obtained indices on each of the above classifications for some 335 institutions of higher learning. These indices were obtained through information from the U.S. Office of Education whereby it was possible to determine the number of majors (i.e., students) in each of the orientations. Each orientation was then expressed as a percentage of the total number of classifiable majors. The reliability of this classification system was found to be high even after six years. Validation studies included the use of Thistletwaite's College Characteristics Index which describes the college environment in terms of 300 dichotomous items.1

Astin in two recent articles (1964a, 1964b) described some of the characteristics of the freshman classes enrolling at 248 colleges and universities in the fall of 1961. He was also able to describe the characteristics of these and other institutions using the techniques and instruments developed in earlier research. The scope of these two studies is truly amazing since the sample included 127,211 students who provided information regarding academic and extracurricular achievements in high school, educational and vocational aspirations, and socio-economic level. A factor analysis of 52 student “input” variables in which the institution was used as the unit of sampling revealed six major distinguishing characteristics of entering classes: intellectualism, estheticism, status, leadership, masculinity, and pragmatism. As Astin has written:

The six factors identified in these analyses seem to represent a meaningful and concise scheme for describing some of the more important characteristics of entering freshman classes. Since the input variables were based primarily on the student’s past achievement and future plans and since the loadings tended to be high, the meaning of each factor seems relatively clear.

If we can assume that we have taken into account at least some of the most important attributes of the students, this set of factors should prove to be useful to educational researchers, college administrators, high school guidance counselors, and others who need to characterize or describe student bodies objectively. (1964a, 267-275)

The other article by Astin (1964b) described the characteristics of institutions to which these students went. Institutions were divided into categories based on whether they were denominational or non-denominational, private or public, technological, university, state college or teachers’ college. Some of the findings of this study are very interesting. For example, technological institutions had the highest median standard score on the intellectualism factor. On estheticism, private nonsectarian colleges and Catholic institutions had the highest median scores. The factor of status was highest in private nonsectarian liberal arts colleges and Protestant and private universities, whereas it was lowest in technological institutions, public colleges and teachers’ colleges. Astin also found that when the type of institution was controlled, the differences between the entering student bodies in different geographic regions became negligible. He concluded that the characteristics of entering freshman classes were found to be highly related to certain characteristics of the college. He felt that the aspirations of the entering students appeared to be well suited to the curricular offerings of the institutions, and that the private nonsectarian institutions tended to recruit student bodies with greater potential for academic, scientific, artistic, and social achievement than did other types of institutions. Astin has summed up the potential of this approach.

The problem of ‘who goes where to college’ involves two interacting decision processes. The first is the student’s attempt to select a college or university which will meet his personal goals and which will at the same time satisfy his family, friends, counselors, teachers and other groups of people exerting pressure on him. The student who has exceptional academic or athletic abilities is often subject to still another set of external pressures: the monetary and other inducements offered by college officials who are competing for his talent. The second decision process which affects the distribution of students involves the college admissions officer. The criteria which he uses to accept or reject prospective students depend not only on the needs and goals of the institution’s faculty and administration, but also on the quality and quantity of the available pool of student applicants (p. 276).

The implications of the research done by Holland, Astin, Thistletwaite and Nichols are considerable. First of all, they have marshaled an array of evidence to support the concept that institutions represent various environmental pressures on students and that these pressures are related to the specific goals of the institutions in terms of various curricula and outlook. Secondly, they have suggested that various curricula offer varying levels of psychological support to the student and make differential demands for conformity. Finally, they have presented evidence that individuals with certain kinds of abilities, both cognitive and noncognitive, choose institutions, vocational goals, and curricula that they feel are somehow appropriate.

Social Reinforcement and Academic “Press”

Research from another area of behavioral science, namely social psychology, provides some unexpected corroboration of the fact that social reinforcement may be a most important factor in both choosing and remaining in a specific vocational curriculum. A vast amount of literature has been accumulated in the area of sociometric choices which indicates that strong re-
relationships exist between sociometric status, mental health, and aspects of achievement (Roff, 1956, 1957, 1961, 1963; Bower, Teshvonian and Larson, 1958; Fitsimmons, 1958; Grunlund and Anderson, 1957; Harris, 1959; Northway, 1944; Northway, Frankel and Potashin, 1947; Barclay, 1964). Sociometric choices have been found to be related not only to ratings of mental health, but to the California Test of Personality, the High School Personality Questionnaire (junior version of the 16 Personality Factor Test), the Thematic Apperception Test and the Rorschach (Bedoian, 1953; Guinouard and Ryschak, 1959; Mussen and Porter, 1959; Tindall, 1955). These studies, though chiefly relating to high school and elementary students, identify the importance that social acceptance has in relationship to actual achievement and aspiration level.

In addition, Backman and Secord (1962), and Backman, Secord and Pierce (1963), have indicated that peer group opinion is an important reinforcer in determining patterns of acceptable behavior and resistance to change. They have suggested that the greater the number of significant other persons (significant to the self) who are perceived to define an aspect of self congruently, the greater the resistance to change. These findings, related to the research regarding the educational environment and “press” which occurs in various curricula, might suggest that the duration of stay in a given curriculum is related to the perceived subjective congruence which exists between the individual and the social reinforcement obtained from professors and peers. If indeed different curricula appeal to various components of personality, need and drive, then understandably, the life style presented by the curriculum will exert a force on the entering student which will be perceived as a differential set of expectations in both technical development and values. Moreover, the self-perpetuation of these expectations continues as faculty select new members to join their ranks. In an intangible manner, they seek to perpetuate those values that they consider both appropriate to themselves and to their curriculum. The same procedure can be surmised in broader faculty selection principles as university or college administrators seek to build up an institutional image and seek out appropriate faculty to enhance this image building process.

Expectancy Tables and Communication

A discussion of contributions to clarification of criteria for success in college would be incomplete without some reference to the work which has been done by a number of independent sources in providing prediction indices. Both the Educational Testing Service and the American College Testing Program have been providing information about what their testing instruments reveal about student success or failure at given institutions. The American College Testing Program has done particularly distinguished work in feeding back information to the colleges and universities that use its program. This feedback is provided in the form of a research report that relates to overall correlations between ACT test variables and grade-point averages. A variety of alternatives is provided for institutions in using the resources of ACT for data analysis. Hoyt (1963) provided a model for further development in the state of Oklahoma. Here a manual was developed that gave not only prediction information about the various colleges and universities, but a description of some of the sociological and demographic factors that relate to the setting of the college. Hills (1961, 1964) has done considerable work in the state of Georgia using the SAT scores for all Georgia institutions. A uniform system of reporting grades to the institutions and provision for feedback to the high schools has been included in this effort. The Educational Testing Service has been conducting research for several years in the state of Indiana in an effort to improve the quality of communication and understanding of test scores as related to specific colleges and universities. Finally, Wright (1965) in the California State Department of Education has engineered an important method of determining admissions to the state college system in California. This research, the result of a number of years of study, has settled on the use of both high school grades and scores obtained on national testing programs to determine whether a student should be admitted to a state college. The uniqueness of this latter policy, though elements of this procedure are also included in the Georgia studies, is the reliance on a sliding scale whereby a student may be admitted to a state college either by having high grades or high test scores. Low or average grades will call for higher test scores, whereas high grades will obviate to some extent the necessity of earning high test scores.

These efforts cited do not include all of the work currently being done. But they are representative illustrations of one approach which is being taken to aid the student, his advisors and college admissions people in making decisions about who shall enter which college.

Summary

It is apparent that some solid developments in testing have taken place in improving both the predictors and criteria of success in college. The direction that this research points to is what has been identified by Hoyt (1963) as the “Educational Engineering of College Success.” Hoyt has identified the overarching principles that have been adopted in the past research and has pointed the way to what he has called “the
goodness of fit" principle. Past research has been characterized by use of either the student profile principle or the college profile principle. The former assumes that success is primarily a function of student ability and attempts to determine whether a student can succeed at a given institution. The latter principle assumes that there are distinctive characteristics of a college environment and that the college can identify students who will succeed in this environment. In reality, these approaches are one and the same, considered either from the student's point of view or the college's point of view. A high school counselor would be taking the first point of reference in counseling students, whereas a college admissions policy would use the second principle.

With regard to predictors of success it is apparent that nonintellective factors of personality, motivation, etc., do possess power functions in prediction once the ability groupings are held constant. Three personality inventories appear to offer substantial promise for continued research. These are the California Psychological Inventory, the Edwards Personal Preference Schedule, and the 16 Personality Factor Test. These tests, though not specifically designed for the admissions problem, have value in the fact that a considerable amount of research has been done with them that relates to nonintellective predictors of college success. It is still important, however, to clarify or establish the longitudinal validity of some of the specific variables identified by these tests. Whether some of the particular clinical or near-clinical dimensions described in these tests are relevant to the criterion of effective human behavior in the college setting is not clear. Hopefully, more research will be done using these instruments.

Other promising techniques that should be explored further are Holland's vocational preference inventory, Gough's adjective check list technique, the OAS of Fricke, the OPI of McConnell and Heist and Osgood's semantic differential technique. The use of negative criteria for the prediction of college failure or dropout status also offers an important supplementary alternative for increasing the prediction of college success. One technique that has so far not been used to any real extent is that of peer ratings of sociometrics. The problem here, of course, is how to integrate these ratings into the overall prediction battery. Certainly the development of new ways and means to assess the educational environments suggests the importance of extending these appraisal techniques to the high school environment.

In conclusion, it might be said that the problems of predictors and criteria of collegiate success, insofar as testing is concerned, are not yet "out of the woods," but these recent research developments provide much promise for improving the decision-making process in vocational goal selection and differential appraisal of institutions of higher learning.

References


Chapter 3

Assessment, Testing, and Culture

Throughout the foregoing chapters, the writer has consistently alluded to what appears to be the central problem in testing for higher education. This is the question of what constitutes effective human behavior in the collegiate setting. This is the paramount and inescapable question. Not only is this true for the collegiate setting, but it is true for the broader contexts of life. The logic of this is evident when one considers for a moment the fact that testing is a means of assessment of human behavior. But what does it assess? Are the scores related to effective criteria? Or have the test scores themselves become the criteria? And further, if test scores are not to be considered the criteria what do constitute effective criteria? Unless we can define independent criteria that serve as rules, standards, or behavioral goals, how can we determine adequate predictors?

Recently, Astin (1965) wrote a very lucid article about criterion problems in which some of these issues were discussed. He pointed out that a criterion is essentially ecological in nature, and is not contingent upon its relationship to any antecedent variable.

In contrast to a purely psychological construct or trait, a criterion variable usually refers to a relationship between the person and his environment. It is, in fact, difficult to speak of 'standards' of performance or of behavior as being 'desirable' without also defining the social context in which the behavior occurs (p. 808).

Astin indicts the efforts of those who would set about creating a testing instrument, standardizing it, and then assuming that the test score is a criterion. He points out that one of the most common misconceptions about criteria is that they can be "validated" through either intercorrelation procedures or factor analysis.

Obviously, the problem of determining what constitutes effective human behavior is tied up with epistemological and axiological problems. There is a wide range of philosophical speculation concerning what constitutes the "good life," what hierarchies of knowledge to accept, and the ordering of personal values. But all of this philosophical inquiry, relevant as it may be, has an essentially intentionalistic or phenomenological locus in the individual. Whatever may be the intellectual justification of reality that an individual holds, this must be translated into specific kinds of behavior. And in all but exceptional cases, the translation of this behavior is judged in the societal or cultural context. Thus, the common element of man's humanity is that he lives, breathes, and behaves in a cultural setting. Culture judges effective human behavior, because culture controls social patterning, and either subtly or bluntly provides the criterion reinforcement for specific kinds of social behavior.

It is the purpose of this chapter to examine the role of culture and cultural mechanisms of control in relationship to the determination of criteria of effective human behavior. The discussion will center on the nature of culture, assessment in its cultural perspective, and the relationship of changing mechanism of control to the ethical problems of social behavioral control.

The Nature of Culture

Man lives in a social environment. He is constantly being affected by the culture in which he lives. This process begins at birth and continues throughout life. By culture is meant not that popular understanding of the term as it relates to girls' "finishing schools" or using the proper fork at a banquet table, but rather the sum total of man's learned behavior in a social environment. Thus any aspect of our day-to-day behavior is included under this concept of culture. Culture used in this manner refers to that which is tangible, such as automobiles, toothbrushes, skyscrapers, and astronauts' capsules. It also refers to intangible behavior and includes wishes, hopes, fears, and ways of thinking. Culture so used includes the buoyant optimism of Americans to be popular, and it includes the fears of Russia that she will be attacked by encircling nations. It comprises the hopes of the young African nations that they can develop a technological civilization.

There are varying attitudes towards culture. One is that culture is an absolute entity. It is seen as a huge, super-organic, all-enveloping constellation of controls that determines everything about a particular
society (Bidley, 1947). In this view, culture becomes a sort of self-generating, autonomous force that evolves according to fixed laws. It determines all behavior absolutely. As a corollary, the only possible way of understanding any individual's behavior is by understanding his society. Another point of view regarding culture is a more humanistic one. Christopher Dawson (1934) has expressed the view that culture is a spiritual community that owes its unity to common beliefs and a common attitude towards life. A less dichotomous position towards culture is taken by Kluckhohn (1945). He sees culture as a series of historically created patterns serving as potential guides for human conduct. This view mediates between the two extreme views in that a determinism is recognized, but it is not absolute. The customs of a group may, at times, be abrogated under some circumstances. No one must absolutely follow the regulations of his culture. However, if an individual wills to remain within the social setting, he wills the means to that end unless he wishes to suffer from exclusion.

Since all of us grow up in a culture, we learn culture behavior by a process of imitation and shaping which is, for the most part, unconscious. We behave in certain ways without really being aware that we are behaving in conformity with our culture. This process of enculturation continues until an individual is unmistakably a Frenchman, an Indian, an American or a Bushman. It is precisely this subliminal learning of a culture that makes for so many amusing and tragic reactions when one thoroughly enculturated person visits another culture. This accounts for amused reactions to an African tribal dance, shock over different sexual customs, and horror over the drinking habits of Europeans. We learn our culture by living it. We do not inherit culture through our genes, as we inherit a tendency towards blue eyes or blond hair.

Social behavior is learned in specific ways. One major determinant is the systematic process of shaping human behavior through selective reinforcement procedures. The reward of parents or social peers in response to appropriate behavior reinforces this behavior. Secondly, the individual's perception of his reality is shaped through imitation, modeling, play activities, and the development of roles. In the earlier cultural systems, the existence of an elaborate kinship system, the sanctioning of certain customs, presented a model of behavior which was transmitted to children. Thus boys learned to identify with certain kinds of behavior by watching the males of the tribe. They may have envied their status and looked forward to possessing this status. They knew that they had to conform to group procedures in hunting and other matters. Deviation could expose both them and the group to the direst consequences.

Then, as in the present, much of our early development is structured along the directions of those command phrases that our parents and others are constantly using to shape our behavior. For, as children, we are dependent creatures. We did not choose to be born, nor do we choose when we shall eat or sleep, or what clothes we shall wear, or when we may play, sit, read or study. The reactions to this process of environmental controls have been identified clinically. Some of us apparently internalize the conflicting expectations of society and our needs. Others become aggressive, strike back in either covert or overt ways at the very controls that force us to behave in certain ways. Often the early control system lasts into later life. We are told as children to eat so that we may grow up strong like daddy. And so we unconsciously equate food with strength and power and continue to overeat well into our maturity. Early explorations of our sexual organs often result in severe indictments with fears of loss of love, sanity or threat of ill health. In our emotional life, dirt, black, evil, sin, and sex often become one end of a continuum, whereas cleanliness, white, virtue, and repression become the other end.

Thus the criterion of effective human behavior emerges as conformity to cultural expectations. We learn that if we are to obtain approval of ourselves we must learn to make certain kinds of responses to specific social expectations or stimuli. Through the process of operant conditioning, we try out alternate courses of action in our behavior repertory. These successive approximations are judged against the criterion of peer and superior responses. Ultimately, the laws and customs of our society join themselves to peers and superiors. Thus from our simple learning to the more complex procedures of social intercourse, we learn both how to generalize our behavior approximations and to make discriminatory judgments about special circumstances. Patterns are built up. These patterns are called habits and as the habits become more firmly imbedded in our response repertory, they subtly alter and direct the nature of our perception. The mind is structured in its mode of learning and perceiving by its physiological organization as well as social reinforcement. If the rationale of Berlyne (1960) and Taylor (1962) is correct, the brain-stem reticular activating system which spreads its fibres throughout the brain-stem and into the thalamus plays a vital part in both learning and perception. For it would appear that this system first relays impulses from any sense receptor to any part of the cortex and that later cortical differentiations appear through a process of conditioned responses. It would appear that the child's early perceptual responses are gradually tied down (neurologically speaking) by the social and personal rein-
forcers of such early object relations as the mother's smile, her approving caressing, etc.

Thus culture or man's social response to living in groups would appear to be the chief reinforcer or patterner of individual social behavior. Effective human behavior would seem to be contextual to the culture, and expressed by patterns of stable predictable behavior which is in essential agreement with the expectations of a given cultural milieu.

**Assessment and its Cultural Perspective**

From the puberty rites of the upper Paleolithic period to present day forms of objective testing, evaluation has played an important part in cultural control. Evaluation as a means of intellectual and personality assessment plays a central role in the transmission of those forms of behavior deemed essential to the survival of a culture. It is the way in which a given society makes sure that individuals promoted to certain roles are indeed ready and capable of assuming those roles. Man has always felt the need of defining certain characteristics that were needed for successful functioning. Conforming behavior in a social setting became the first major criterion for this assessment. Certain present or past characteristics were deemed to be predictors of future congruence to the criterion. Though the early predictors were variously assessed in terms of manliness, hunting prowess, knowledge of sexual mores, and recognition of authority, they emerged in early societies as meaningful dimensions of evaluation or assessment. The more specific criteria of effective human conduct were basically related to stable predictable patterns of behavior which were deemed consonant with the survival of the group. Thus stable predictable behavior was invested in a routine and sanctioned by ritual practices. Eventually, certain kinds of behavior developed into powerful means of education. So early man in his own trial-and-error method found that certain characteristics that were observable or testable were reliable predictors of stable group behavior.

In order to insure the criteria of effective and predictable human behavior, a number of cultural mechanisms of control emerged. These mechanisms of control had as their goal the collective security of the group. They are identifiable as the family, customs, law, chieftains, religious beliefs and leaders, and education. To early man, they represented the concrete framework by which the cultural heritage was transmitted and the survival of the group insured.

The earliest form of assessment or evaluation was global in nature. Though no attempt was made to separate intellectual functioning from personality, the behavior patterns of the individual were subjected to the criterion of group collective security. The behavior repertory of the individual was examined and scrutinized by those who were in a position of authority to determine whether there were identifiable patterns of predictable and stable behavior. The early leaders of men were empirical psychologists. Homer and the Bible provide examples of the psychological wisdom of early men. Ulysses on one occasion, not wishing to go to war, pretended to be mad. He began to plow a field sowing salt. One of his friends placed his young son directly in front of the plow and Ulysses turned aside, showing indeed that he was not mad and could not escape fulfilling his promises. The Bible too is filled with descriptions of how behavior was assessed. In the account of Genesis, Adam hid himself and God is portrayed as being aware that something was wrong because of this change in behavior. Likewise, in one of the early tribal wars Gilead found a way to distinguish between friendly and unfriendly groups. He asked them to pronounce the word Shibeboled. If they could not pronounce it correctly, they were judged to be enemies.

The oral examination plus prescribed feats of courage served as a predictor of effective behavior among early men. Later on, as formal education developed, the degree of memory recall and conformity to school expectations also became a part of the evaluation procedure. For whether observation was used alone or as part of a selective questioning procedure, this technique possessed power functions for prediction in the sense that it provided certain behavioral cues that could be detected and identified even in the absence of a logical rationale to explain the procedure.

But it was not long before a theoretical framework was joined to the observation procedure. Plato in his hierarchy of society demarcated certain kinds of behavior expected of various levels of society. He expected the philosopher-rulers to manifest verbal ability and intellectual wisdom, the soldiers and warriors to evince courage and manliness, and the vast masses to be concerned only with bodily functions. Hippocrates discerned differences in men's constitutional makeup suggesting that all individuals fell into the categories of phlegmatic, choleric, sanguine, or melancholic. The oral examination used either by itself or in conjunction with a philosophical position emerged as an important part of the medieval university where a student was not compelled to attend any number of regular lectures. The essential burden of evaluation or assessment in medieval education was placed on an elaborate variation of the oral interview in which a candidate for a degree was examined by a group of university "masters" before his peers. This took the form of defending a thesis in which the full complement of the young scholar's abilities was brought to
bear during the process of presenting an argument, and defending it against the attacks of his superiors and peers. The advantage of this type of assessment of behavior, from the evaluation point of view, was that it provided not only some index of the personal knowledge of the candidate, but also some idea as to how well a given individual could think on his feet, providing opposing arguments to the charges made against his thesis, and dealing with the general stress of the situation. This form of oral examination is still with us in the modern university where it is used extensively both in foreign and American institutions to determine competency of master's and doctoral candidates.

The use of personal observation and interviewing has always been structured by the needs of the cultural group. These needs provide the point of view or the frame of reference. Even as in early cultures, the assessment of men related to personal skills and prowess in hunting and warfare, so later in medieval times monks were scrutinized to determine whether they possessed the kinds of characteristics needed in the monastic life. In the Reformation era, for example, Ignatius Loyola and his followers developed systematic means for assessing the spiritual life of Jesuits and evaluating the characteristics of the neophytes. But in all of these historical periods, the generalized observation emerges that means for the assessment of men were always directed by the frame of reference relating to survival of the group. Deviation has always been considered dangerous because it indicates divergent thinking and divergent thinking cannot be related to predictable and stable patterns of behavior.

With the nineteenth century further developments took place in the assessment of behavior. An extension of the oral examination was developed in the essay examination. Used extensively in the developing universities of the nineteenth century, it still remains as one means of evaluating student ability in a more global manner. A given topic is provided for discussion, evaluation, comparison and other purposes. The student is expected to marshal his whole knowledge of the subject and his ability to organize concepts in the answer he writes.

But the development of more quantitative methods in assessing human behavior had to wait until the nineteenth century for its beginnings. During this century, methods of measurement used in the physical and biological sciences were gradually introduced into the study of human behavior. This approach was sparked by a desire to become more objective in the analysis of human behavior. Derived in part from the accelerated studies in physiology of Muller, Helmholtz, Maudsley and others, the general contention was that the key to the understanding of human behavior was to be found in an understanding of the nature of the biological organism and the collection of measurement data regarding reflexes, perception, stature, and the sensory avenues. In part also, the movement was augmented by the study of Darwin's theory of natural selection. This approach lent credence to the notion that heredity endowed various men with superior intelligence and was a capacity fixed once and for all by genetic inheritance. Galton (1869) in a study of genius found that most of the significant contributions of great men in Britain were confined to members of a small number of families. He failed to recognize the privileged status of these families in terms of cultural enrichment. But he did pursue the study of individual differences devising many tests of simple sensory and motor functions to measure reaction time, etc. Further, he provided the statistical basis for the comparison of groups and specific behaviors.

Binet and Simon, charged with the task of developing an objective type measurement instrument in the area of intelligence, criticized Galton's studies as being too narrowly physiological in nature. They were concerned with the two principal problems of assessment in differential psychology. These were: (1) to determine the nature and extent of individual differences, and (2) to discover the interrelationships of mental processes within the individual. With the measurement data that Binet and Simon obtained, a variety of rapid developments took place. Cattell, a student of Galton, coined the term mental test in 1890. Goddard translated the Binet scale into English in 1908 and used it in the Vineland Training School. In his studies of the Kallikak family, he arrived at the notion that the measurements were indeed providing an assessment of hereditary differences. Stern, the German psychologist, provided a rationale for Binet's testing on the basis of mental age and chronological age. Terman in 1916 revised the earlier instrument and popularized its usage.

In the area of objective mass testing, the work of J. M. Rice in the United States seems to have been one of the first attempts to use the methods that have developed into objective testing. In the last decade of the nineteenth century, he devised a spelling test of 50 words and learned that children in one school could spell as well with only 15 minutes practice a day for eight years as those who had spent 30 minutes a day for eight years (Ayrers, 1918).

Though the presentation of these results brought on Rice an almost unlimited attack from educational circles, who denounced his studies as foolish, reprehensible and from every point of view indefensible, little by little thoughtful men began to appreciate the value of what Dr. Rice had demonstrated. Thorndike
developed a test for measurement of handwriting in 1909, measurement clinics sprang up throughout the country and the development of mass testing through objective techniques was under way. From the early tests relating to the quality of handwriting and arithmetic knowledge, a variety of techniques was developed that made it possible to use true-false categories, multiple-choice alternatives, matching and other procedures. During the first World War, the development of the Army Alpha series and the Otis tests of intelligence demonstrated that the objective test was here to stay. Hundreds of tests were soon developed and in more recent years these tests have moved from single scores to multiple scores and dimensions. Not only have thousands of tests been standardized by scientific procedures, but nearly every school teacher now uses objective tests to determine how well learning is going in his class.

Since the enactment of the 1958 National Defense Education Act with its concern about able students, funds have been provided for large-scale testing programs in secondary schools to identify students with outstanding aptitudes and abilities. The states acted to establish state-wide testing programs. Large scale testing programs were supported by research and private foundations, and nearly every college and university has adopted some testing program to evaluate or screen applicants for admission. The development of the large-scale testing programs such as the College Entrance Examination Board, the American College Testing Program, and the National Merit Scholarship program have become an accepted part of evaluation in modern American education.

Accompanying the expansion of testing programs, a new technological development in the use of scoring machines and computers has made the analysis of data easy and economical to obtain. Complex mathematical calculations can be obtained in a matter of minutes on thousands of cases. In today's world a brief article in a journal can report a study in which 127,211 students were tested on a battery of instruments composed of 52 student "input" variables (Astin, 1964a). Such a gigantic task would have been impossible 20 years ago. Turing1 in 1950 stated that within 50 years' time it should be possible to program computers with a storage capacity of about $10^8$ and for these computers to be able to outwit a human being in about five minutes. Computers today are being used in every phase of government, business, automobile control for freeways, and even in biblical studies.

Even more fantastic uses of computers are now being envisaged. One such project is attempting to devise ways and means for connecting many small sub-stations to the console of a large computer so that immediate access can be had by many individuals to the large computer. Another is the large scale use being made of scanners in industry to facilitate reading or sending bills. At present Sperry-Rand has compressed a big Univac computer into a six-inch box through the use of transistorized circuits. "Scientists have constructed miniaturized circuits so small that 20,000 of them each doing the work of an ordinary radio tube could be placed on a postage stamp."2 Wiener, the founder of cybernetics, conjectured that in the next decade or so computer memories would be developed that have elements akin to genes, and input and output problems will be solved by light of specific molecular spectra. Finally, as Southard writes:

As long ago as May, 1960, a panel of experts at the Western Joint Computer Conference in San Francisco predicted that within ten years it would be possible to "walk into a computer store" and, for the price of a new automobile walk out with a computer the size of a golf ball or maybe as large as a grapefruit. This computer would have the capacity of IBM's 7030 (Stretch), a computer with up to 262,000 sixty-four bit words of storage and a 1.5 microsecond add time and would have the "intelligence" of a fresh baccalaureate degree holder from college.3

These fantastic developments in computer technology and data processing illustrate dramatically the new dimensions of assessment procedures. It is possible to compare individuals or groups of individuals with large samples and norms developed from these large samples. But though the procedures have become exceedingly advanced, it is quite apparent that testing in this setting has moved away from the original intent of assessment procedures. The early procedures were related to making judgments about the predicted success or failure of an individual within a specific cultural setting. The present direction of testing, despite its technical and methodological excellence, subtly introduces a new criterion of excellence, i.e., comparison with the average. Explicitly or implicitly, the test score becomes a criterion in itself rather than a means to an end. The mathematical symbol becomes all too often the criterion of expected performance without any real reference to the behavioral phenomena needed for success in the cultural setting.

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2 Ibid., p. 111

3 Ibid.
Changing Mechanisms of Cultural Control

One of the inevitable consequences of harnessing more and more energy through technology is change in the patterns of a given civilization. The industrial revolution provides one example of this fact and our present culture exemplifies another. With changes in our technology have come profound changes in the basic anchors of society. Man's earliest sociology of groups held that certain stable patterns of behavior were necessary to maintain the security of the group, engage in collective food-gathering, and provide for mutual protection. The extended family, customs, law, ethics, religion, priesthood, chieftains, police functions and education all seem to have developed as man's unique response to his environment. The mechanisms of control that evolved possessed a basic stabilizing effect on society. This was done by creating a psychologic sense of security through a degree of measured predictability of behavior. In terms of learning theory, these control mechanisms were the great social reinforcingers which developed in every member of the society a repertoire of appropriate responses. In a very real sense then, cultural mechanisms of control had as their goal and function the evaluation, prediction, and control of behavioral phenomena. Through measured experience as a criterion, man obtained in a pre-scientific manner that which he has attempted to obtain in more recent ages through science.

These controls, however, were chiefly imposed on man from without. The individual had little choice but to conform to these control mechanisms. They were specifically attached to the group, culture, or nation, and automatically provided answers in regard to what was right and what was wrong, what was accepted and what was not. If man did not know himself what the answers were to his persistent questions, he could find out by asking the "authorities." The bases of these controls were centered in the strong position of the family and the familial culture. The basic position was one of ethnocentrism or a conviction that one's own group was superior to all others, or at least most others. Another bolstering factor in this control was the fact that the family was often anchored to the land and dependent on an agrarian economy. Later on, a common religious heritage derived from nationalistic origin also became a common control mechanism.

Today, the characteristics of American culture have changed radically. A 1958 survey showed that one out of five Americans moved within that year. Our culture is highly technological with demands for large populations of technicians, highly skilled workmen and pools of brain power. Great complexes of industrial and technological "know-how" have been amassed in strategic areas of the nation. The ever-increasing utilization of energy forms through technology has demanded a highly mobile nation. As a result, the typical control mechanisms of the past have weakened, giving rise to the charge by many that there is a sense of cultural "ennui" or "drift in values."

The effects of our cultural mobility have been many and varied. The traditional anchors of the land, a religion based on the land such as in the old European tradition of "whose land, his religion" (Cuius regio, ejus religio), and a family of assured social status have all but disappeared in modern American life. Mobility today means that in most instances the family exists alone in a strange area. Very seldom do uncles, aunts, cousins, grandparents and others reside next door or even in the same area. Mobility means that the significance of property as a psychological anchor and root has been changed. Banks indicate that the average length of occupancy of a house with a 25 year mortgage is seven years. Changes have resulted in sex roles with women coming to marriage not with feather beds, cooking ability, and canning prowess, but with a professional competency, such as teaching, nursing, or secretarial work. Mobility has resulted in changing patterns of housing such as are seen in the vast suburban developments where relatively homogeneous groupings are imposed by qualifying salary criteria and contracting agreements. Changes in the strength of institutional religion have also occurred. It is a well-known fact that a large part of our population changes its religious affiliation because of either marriage or personal preference.

Methods of child-rearing have also changed with accent on more permissive patterns of child-rearing. From more direct controls the family has learned to rely on more indirect ones. Boys get less punishment, and girls less indulgence and protectiveness. Though girls are possibly less debilitated by parental affection and power, boys find it more difficult to identify clear roles to envy or emulate. The end result may be that the procedures themselves are less effective in the development of leadership and responsibility in children. Miller and Swanson (1958) have interpreted these results as an indication that America is moving towards a bureaucratic society that emphasizes, to put it colloquially, "getting along rather than getting ahead."

It is furthermore apparent that the economic value of a college education is recognized by most youth. While opportunities for college attendance are being made greater, there is also a continued effort on the part of institutions of higher learning to become more and more selective in terms of admission. As a result, students even in the elementary school are beginning to feel the pressure to achieve at all costs.
To all of these changes must be added the continual crisis orientation of modern political developments with the need for competitive achievement in the areas of space satellites, moon probes, and atomic arsenals of defense. The international scene for the past 20 years has been one of continued peaks of anxiety about global destruction and warfare. There is a strong suspicion on the part of many that our very economic welfare hinges on continued huge expenditures for military preparedness. Federal programs, often in response to international demands or conditions, have affected huge segments of our population through educational programs and defense contract spendings. Meanwhile, within the United States itself, riots and demonstrations have marked the difficult struggle of the Negro citizen to overcome the traditional restrictions of older ethnocentric cultural defenses.

In response to these changes a period of disorganization has been “divined” by some and “felt” by many. Efforts have been made to swing the United States back into a conservative frame of reference. The allegations have been made that present trends are “socialistic” with the implication being that this is the same as “communistic.” Others have attacked the role of the federal government in American life. But those who attack federal subsidies do not want these subsidies removed, and those who decry federal spending do not wish military defenses and bases that employ thousands reduced. The entire picture is one of great confusion about the goals and values of American life. The same situation exists in education where parents wish their children to receive a well-rounded education, but in depth? They wish them to be intellectual, but still “adjusted” to group pressures and codes. Though there are many causes for our present state of cultural disorganization, one explanation of these national anxieties is that because of advanced technological development, a partial disintegration has taken place in our externalized control mechanisms. The toleration of multiple value systems, the emphasis on democratic processes of decision-making, despite the fact that group decisions may be wrong, the search for meaning in all the facets of advanced research, have resulted in much unrest, both physical and mental, on the part of individuals and groups. The cultural anchors of man’s psychological security have been uprooted, and man’s challenge to the alternative of being controlled from external sources has resulted in the unparalleled task of developing controls from within. Essentially, man’s social and psychological orientation to cultural controls has not kept pace with the changes that are occurring all too rapidly in the dimensions of technological change.

New Mechanisms of Cultural Control

The partial disintegration of some of the older external control mechanisms and the development of a new technology have resulted in some new devices that have all of the trappings of control mechanisms. Mass media of communication and large scale testing programs are two of these devices. They have this in common with traditional mechanisms of control, that they have come to represent means for bringing about a certain amount of unanticipated stability and cohesion in our society. Borkoff (1959) has suggested that television and other mass media of communication do this by: (1) scattering or diversion of audience attention, (2) refocusing of existing tensions and their reduction by the semblance of an expanding scale through myriad contacts with distant places and personalities, (3) the illusion of modernity and the appeal to the latest which is really new as a criterion of value, (4) providing a sense of confidence in a remote authority derived from the pronouncements of official cultural idols and heroes, and (5) providing an important element of ritual regularity and predictability vested in such expected symbols as the regular TV program, the daily newspaper, and the weekly magazine. It is interesting to ponder the fact that though we may move from state to state, change jobs, and find ourselves in situations where we must adapt to new roles, we can always find one element of universal stability in the Jack Benny Show, the Perry Como Show, and the Huntley-Brinkley Report.

Testing as a means of educational evaluation has also emerged as a cultural control mechanism. More and more in our society education has become important as a means to economic success. As the school has assumed more of the original functions of home and church, testing has also become more prominent. From the readiness tests taken in kindergarten to the Graduate Record Examination, students take hundreds and even thousands of standardized, individual, and teacher-made tests. Education too is one cultural mechanism that has increased in its importance. For though people may move, there are always schools, and the tests, though possibly different, are always there. For testing has come to represent one major criterion of personal evaluation that can operate effectively within a highly mobile and technological culture. As has television, testing has come to represent a criterion of evaluation and excellence that effects a measure of stability and cohesion in the educational process. It too is vested in an ultimate authority, the scientific process. And it certainly has an element of ritual regularity because, as every student knows, when one testing is over, another will soon begin.

Students, high schools, institutions of higher learning,
these two new mechanisms of control present both some assets and liabilities. In the plus column, one can see all of the learning possibilities that are in television and the other media of communication. Lectures can be taped, whole courses can be given via television. Excellent programs can be presented to masses of people providing them with a cultural richness never before possible. And then, let us concede the fact, who can doubt the very real psychological relaxation that television provides by way of escape from the humdrum day-to-day existence, the pressures of achievement and status, and the accelerated heart-beat of the freeway traffic! So likewise with testing. The measurement of the educational product is a means to self-direction and curriculum change for the school and the individual—if used, and used correctly. Moreover, the objective measurement of achievement is certainly a good in itself. Furthermore, the procedure of testing is an important link in the discovery of new scientific information not only about the content aspect of education, but about the process of learning itself.

But despite some of the advantages of television and testing, there are hazards also. Consider the effects of a steady diet of aggression and hostility in television viewing on the behavior of children. Bandura and Walters (1963) have demonstrated that children watching an aggressive form of behavior in a film show considerable aggressive behavior afterwards. This was found in comparison with children watching models who displayed inhibited and nonaggressive behavior. There are frequent reports of how acts of violence or robberies have been conceived through the observation of plots on television. Obviously, one way to control this situation is to have governmental control of the mass media. Since this solution or other similar ones is unacceptable to most individuals, the alternative is to exercise individual control enforcing certain family criteria of excellence. One must balance the good effect of cultural programs and genuine entertainment against the continual kaleidoscope of wretched westerns and blatant sex.

In a similar vein, testing too has tended to become a standard unto itself. Though here again governmental control would be unwise, it is most likely that the testing devices have tended to control the course of education rather than the other way around. Moreover, test scores have tended to be regarded as something akin to absolutes and therefore inviolate. Here too, controls need to be established that are consonant with the educational objectives of our institution.

The Challenge—Who Shall Control?

The arguments of this chapter have suggested that the ultimate criterion of effective human behavior is contextual to cultural settings. Further, an effort has been made to show the relationship between earlier methods of behavior assessment and present testing devices. It has been stated that effective human behavior is commonly judged and controlled by cultural mechanisms. On the other hand, earlier cultural control mechanisms are now disintegrating under the pressure of a new technological culture. How then shall we determine our cultural controls? If testing, among other modern mechanisms, emerges as a control device, do we have any control over it? Or does it become a monster robot that will force us to its own standards?

The answer to this challenge lies not in fear of the technology that we have created, but rather in the development of effective means for evaluating our own cultural behavior. Specifically, this means that colleges will have to examine the expectations that they hold, not only explicitly in their accreditation documents, but implicitly in terms of the environmental "press." A taxonomy of collegiate behavior needs to be developed not only for individual institutions, but for departments within those institutions. Once these behaviors can be specified, then tests can be devised to meet the new criteria. Further, predictors can also be identified. Our questions about the collegiate criteria of excellence will have to involve not only these environmental "presses," but questions of values and philosophical inquiry.

Nor should we fear the results of such inquiry and criterion construction. Obviously controls will continue to exist, but is it not better that those who direct the educational enterprise formulate the criteria of excellence than to leave this to blind fate? The alternative of returning to an earlier stage of development is ruled out because of our developing technology and obvious changes in cultural style of living. This leaves us with two other possible alternatives. Either there must be some external super-agency to establish the criteria and set the controls, (it could be a testing company as well as the government), or as a society we must care enough to do something about the situation ourselves.

The first alternative of control from some external agency is repugnant to many because of the nature of the super-imposed control. Some already feel that the evolution of computer technology in business, government and education will lead inexorably to Orwell's 1984. But it should be pointed out that 1984 is dis-

\footnote{For example the San Francisco Examiner (November 13, 1964) related how a group of teen age children had perpetrated a series of robberies netting them over $5,000.00 on the basis of a format presented in a television program.}
tasteful to us because the controls were imposed from without and were not ones of our own choosing. That this is in part the doctrine of the Soviets and particularly the Chinese Communist “brain-washing” can scarcely be denied. That this could be the approach of either left or right wing movements to control our social structure is also a possibility.

But a dimension of this same problem relates to the fears that some voice against behavior control or modification in the field of psychology. Krasner (1962) has pointed up some of the issues involved in the systematic reinforcement of approved social values. He has reviewed the criticisms which imply that either depth psychology or overt manipulation of individuals through behaviorist conditioning will bring about a society wherein freedom of choice will be circumscribed by the use of certain techniques.

Most of these arguments refuted by Krasner are also answered by Goldiamond (1963). Goldiamond has discussed the furor that arose over the use of subliminal perception. As will be recalled the possibility was raised that one might use television screens to get people to do things. Indignant responses urged society to resist buying popcorn or drinking beer because of this technique. Even ministers were warned not to attempt to instill religion by flashing signs “Rally for Christ tonight.” And yet, as Goldiamond has pointed out, this whole problem was one of communication between the scientist who had long known about subliminal perception, and the aroused fears of those who did not understand it.

The real question then comes down to this—do we wish to use the techniques and principles of learning that we already possess in the social reinforcement of values we think are important, or shall we simply not use them assuming that somehow our children will acquire the value systems we hold important? Should we give up easily because the task of criterion determination is difficult? The answer must be no! There are values that we can operationally define into criteria. Unquestionably, American education is placing great emphasis on the ability of the individual to develop his own internalized controls, to think through his value systems, and to develop those skills and techniques necessary to cope with an ever increasing technology. The key concepts seem to be flexibility and responsibility. If these concepts are part of the goals of American democratic education, then it is necessary for those of us who care enough to aid students in meeting the cultural expectations of their society. Making up one’s own mind is not a process that takes place in some kind of mythical vacuum. The facility for making meaningful and reality-oriented decisions is a process subject to the same laws of learning as is behavior.

In conclusion, this chapter has discussed the question of criterion determination as it relates to culture and cultural control mechanisms. It is the judgment of the writer that the major problem in testing for higher education lies in the determination of effective criteria of human behavior. The basic argument has been that testing is one form of assessment of behavior that must be viewed in its total cultural perspective. Evaluation has always been an important part of cultural control, and testing has all of the aspects of a control mechanism. It is argued that control mechanisms fulfill a basic need of man to function within dimensions of predictable conduct, and that conformity to cultural expectations is the ultimate criterion of effective human behavior. With the lessening of traditional external controls, a danger exists that other mechanisms may rise up to take their place. It is held that education has the inherent capacity to define meaningfully its own cultural expectations. Further, it is suggested that such self-control is entirely consistent with traditional values of self-determination.

References


Chapter 4

Communication and Decision-Making

Of all the possible approaches that one could take to the question of testing for higher education, the most reasonable one seems to be the “goodness of fit” one. This implies that the college-bound student should be able to find the curriculum and institution that best meets his needs at the time of his initial decision-making. It also implies that the college and university admissions officers are able to make wise decisions about who should be admitted. Two groups of individuals then are directly concerned with this communication and decision-making process, students and college admissions officers. Other personnel in both high schools and colleges are also involved. High school counselors and teachers attempt to help the student study and understand his intellectual and personal characteristics, and select the best institution or curriculum for his present goals. College counseling staffs help students reassess their goals and make those changes that may be in accord with their later perceptions. Thus, though both groups have different goals, the same data may help both, providing it is communicated in an adequate manner. At present, testing data would appear to be not only the means to access to higher education, but also the chief criterion. If effective human behavior in the collegiate setting is to be the broad goal towards which we are moving, then this goal will have to be operationally translated into some kind of effective measurements. With a “goodness of fit” approach as the desired outcome, the following questions are posed for consideration in this chapter: (1) What kind of a “goodness of fit” model can be projected as a guideline for testing for higher education? (2) What are the implications of a computer technology in testing for higher education? (3) What is the role of counseling vis-à-vis testing for higher education? and (4) How can American education both control and guide criterion development?

A Model for Testing for Higher Education

The “goodness of fit” principle can be incorporated in a model for testing for higher education. If it is, however, it will have to take into consideration global aspects of the individual student, characteristics of high schools, and the educational climate or “press” of various curricula both within and between institutions. It will be concerned with improving the communication of information between high schools and colleges, and the decision-making of both. Such a model should possess the following characteristics: (1) It should be comprehensive in the sense that it adequately takes into consideration all of the relevant predictors and criteria of success; (2) it should be logically coherent in that it follows from a basic rationale; and (3) it should possess power functions in the sense that it is capable of adequate description, definition, prediction and control of the phenomena to which it is related.

First of all, what does “comprehensive” mean in terms of predictors and criteria? In terms of criteria this means that the differential expectations of various institutions and curricula within institutions must somehow be taken into consideration in criterion determination. Though Astin (1965) has not proceeded to the analysis of curricula within institutions, he has provided an excellent set of indices to measure the environmental “press” of institutions as compared with each other (Who Goes Where to College). Using the environmental assessment technique and estimated freshman input factors, he has been able to compare 1,014 colleges and universities. Monumental and impressive as this contribution is to the establishing of an independent criterion of collegiate expectations, the logical extension of this work should be into the differences and expectations that exist in various divisions.

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1 Space is not devoted here to an evaluation of Astin's work Who Goes Where to College, because the technique has been discussed in an earlier chapter. However, in brief, Astin obtained scores on each of the eight scales of the environmental assessment technique for 1,014 colleges and universities. These scales were: (1) estimated selectivity in terms of highly able students who wished to enroll, (2) size of the institution, (3) realistic orientation, (4) scientific orientation, (5) social orientation, (6) conventional orientation, (7) enterprising orientation, and (8) artistic orientation. In addition, estimates of freshman input factors included: (1) intellectualism, (2) aestheticism, (3) status, (4) pragmatism, and (5) masculinity.
of the college and university system. For if the ration-
ale of differences between institutions holds, it will
likewise be found to be appropriate to "presses" within
the institution that each faculty member is aware of in
an empirical manner. (For example, the differences in
grading between departments and divisions and col-
leges.) Thus, the comprehensive criterion must not
only take into consideration grade-point average, but
the peculiar expectations and environmental "presses"
that exist within the institution. Eventually, one might
suspect that non-cognitive factors such as faculty ex-
pectations can be balanced as a substantial contributor
to the grade-point average. Into this complex criterion
determination process must be entered: (1) the pro-
fessor's identification with his departmental or divisional
standards (including his own idiosyncrasies in relation-
ship to these standards); (2) the amount of time that
he devotes to teaching, research, committee work, book
or journal writing; (3) the size of his classes and num-
er of student contacts. For to the extent that he is
involved with students, he will be able to judge their
"goodness of fit" with his own and department "presses."
In the absence of personal contact, the objective exam-
ination score weighs most heavily on the nature of the
criterion.

Comprehensive predictors on the other hand will
include not only intelligence as demonstrated by the
standard types of achievement examinations now being
used, but also the areas of motivation, interests,
and personality. Gough (1965) has pointed out that
our present admissions policies have an undue emphasis
on the so-called test-demonstrated intelligence factor.
He has cited evidence to indicate that there is little or
no relationship between tests of ability and criteria of
creative work (Mackinnon, 1961; Gough, 1961; Getzels
& Jackson, 1962; Torrance, 1962). He has pointed up
the fact that tests such as the Miller Analogies and
the Graduate Record Examination have very low cor-
relations against criteria of scholastic productivity or
even grade-point average (Kelly and Goldberg, 1959;
Maberly, 1963). Gough suggests that these tests and
others that measure achievement are overemphasizing
the convergent aspect of intellectual functioning to the
detriment of divergent or creative thinking.

The rationale of the model is both cultural and
philosophical in its bases. It is cultural in that criteria of
effective human behavior are determined by the evalua-
tion of superiors and peers in a social context. Far from
there being one cultural criterion as in early societies,
it is recognized that the philosophical values of indi-
viduals in various settings are operationally translated
into environmental "presses." These "presses," though
seldom defined as such, are created by professors and
administration alike. They are perpetuated by a process
of faculty selection and recruitment that involves peer-
evaluation techniques. Moreover, there is a wealth of
evidence that perceptions of this environmental "press"
are formed through social communication, modeling,
imitation, and operant conditioning.

Insofar as testing is to be considered a means of
achieving a goodness of fit between students and insti-
tutions, it is proposed that testing for higher education
be considered as a systematic reality-oriented method
of communication designed to facilitate the best func-
tional decision-making by both students and colleges.
By testing is understood the scientific method of sam-
ping behavior which results in objective scores. The
concept of a systematic reality-oriented method of com-
munication implies that information is readily avail-
able to all concerned parties with a view towards effec-
ting epistemological congruence. By functional deci-
sion-making is meant the end products of a series of
learning experiences and explorations of the conse-
quences of tentative as well as actual decisions.

This proposed rationale implies some philos-
ophical issues. The attitudes or postures that would char-
acterize the model are those of realism—particularly
the epistemology of realism. Testing procedure itself
is based on the philosophy of scientific realism that
presumes that reality is composed of a variety of forces
that are ordered to each other on some extra-mental
basis. For example, the information contained in Astin's
book (1965) about the differential "presses" of 1,014
colleges and universities presumes that these differences
reflect characteristics that are actually felt and observ-
able in each of these institutions. The ordering of these
forces or characteristics is assumed to be regular, con-
sistent, and predictable. Man has called this ordering
process law. Science, as testing, has investigated the
nature of external phenomena or behavioral phenomena
through a description and classification system that in-
volves a hierarchy of procedures including both em-
pirical observation and rigorous hypothesis testing.
Realism in both science and testing postulates that
there is such a thing as the constancy of perception
(universally considered), the fact of antecedent-con-
sequent relationships (cause-effect principle), and the
tenability of discovering the existence of such relation-
ships.

This epistemological credo also implies a value
system. As the products of scientific investigation are
judged valid and reliable, they are assumed to be
worthy of confidence or certitude, to use the older
word. For the purpose of science, as testing, is to
define the characteristics of reality with ever increasing
degrees of certitude. The cultural mechanisms of con-
control described earlier and testing procedures have this
in common, that they both attempt to forecast the
future. The differences that exist between the two are
related to the fact that modern criteria of effective be-

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havior have many societal dimensions rather than a few. Further, though both past and present modes of evaluation do include judgment by peers and superiors, testing theory rests on the concept of prediction that involves probability theory. Probability theory is simply another way of making predictions based on the chance of events happening in a rather stable manner.

Science in general attaches value to the tested products of its method. These considerations applied to testing for higher education mean simply that knowing about one's chances for success is something good. If some knowledge is good, then more extensive knowledge is better, and comprehensive knowledge is best. The logic of this rationale pertains, however, to the communication of information. The purpose of the model in testing for higher education is to bring about better levels of understanding and communication between students and colleges. It is therefore not inconsistent with the existentialist position in counseling whereby individuals adapt and clarify their personal goals and value systems. Communication of meaningful information can be either accepted or ignored in the final process of decision-making.

From a theoretical point of view, the model will possess power functions if: (1) comprehensive and independent criteria are identified, (2) proper predictors are established, and (3) communication exists regarding these criteria and predictors. The task of identifying comprehensive and independent criteria must be guided by those who direct the process of education itself. Criterion determination does not result from high-sounding philosophical phrases used in accreditation reports or graduation speeches, but in a realistic determination of what kinds of social controls are being used in establishing and maintaining the environmental "presses." In this aspect of criterion determination, the testing experts are needed to determine operationally how criteria may be evaluated. In regard to predictor determination, here too the testing expert is needed. We know that intelligence as measured by achievement is an important factor. But do we know how personality and motivational factors, creativity and social acceptance relate to the whole question of criterion congruence? The establishment of both effective criteria and predictors is dependent on a continuing dialogue between those who apply the criteria and those who analyze them.

Computers and Decision-Making

The advantages to such a proposed model are those that accrue in the area of communication and decision-making. For when students face the decision as to which curriculum or which college they should choose, they are really attempting to assess their liabilities and assets, goal aspirations and characteristic modes of behavior against their anticipated chances of success. The same question relates to college admissions. Admissions officers are desirous of admitting those students who they believe will live up to the expectations of the college. They are therefore looking (or should be) not only for certain intellective predictors of success, but for indications of creativity, divergent thinking, or other factors that will make both faculty and students happy about the selection process.

Peters (1963) has suggested that the decision-making process includes a consideration of objectives and necessary data about each objective. It further includes a prediction system of (1) possible alternatives, (2) possible outcomes, and (3) probability of outcomes. In accordance with the basic rationale of the model, decision-making should be based on a realistic assessment of personal strengths and weaknesses. This includes a consideration of one's assets and liabilities, the consideration of various vocational choices and institutions, and a weighing of the "risk-taking" that would occur as a consequence of decision-making. Exploratory decisions may then be made and "tested" to find whether they are adequate for the individual's final decision.

Pertinent to the decision-making process is the dissemination of information and communication of this information. Cooley (1964) has pointed out that over half of the 19,000 high schools in the nation serving some 9,000,000 students in grades 9-12 do not have adequate counseling resources for vocational decision-making. He has suggested that test data about individual students could be stored in regional computers and that, with a systems-typewriter outlet in high schools, immediate access could be had to a computer. If computers could also store criterion data of regional colleges and universities in terms not only of global environmental "press" but of specific departmental or divisional standards, it would be possible to provide information to individual students in a matter of minutes. The importance of computers linked in this manner to high schools is not only that adequate information could be had about individual needs in terms of risk-taking, but information could be provided about deficiencies. Thus, for example, if a student were interested in majoring in engineering, he might obtain specific answers to his questions about how well he could be expected to do at the state college. Furthermore, if the computer could be consulted early enough, say in the sophomore or junior year, then a very powerful motivation could exist on the part of the student to increase his chances of success. Since it is now possible to store all kinds of information in a computer, why should it not be possible to include in this memory storage variables relating to personal, social, and curricular matters?
In addition to answering specific questions about risk-taking, it is entirely possible that the computer might be able to provide information about specific deficiencies that the student may have. Perhaps more work in algebra would substantially increase the probability of success in a given curriculum.

Another consideration is the fact that computers could provide programmed instruction for the individual student. If specific weaknesses can be identified, the chances of success could be improved by the acquisition of additional knowledge or skills. A programmed course of learning in algebra could be guided by the computer. In addition, summer school programs could be used to obviate deficiencies as well as providing supplementary enrichment experiences. All of these possibilities lead one to the conclusion that the use of a computer technology in providing a “goodness of fit” approach to vocational problem-solving is a realistic means to self-appraisal.

The use of computers in this manner is simply a reliance on technology to improve the quality of information available for decision-making. It is assumed that decision-making will be only as good as the communication and understanding of information which is available. As long as inadequate information is available in terms of the specific vocational questions that youth may ask, so long will the decision-making process be less effective. A further implication of computer usage is the manner in which computers promote the matter of learning decision-making. Bruner and Postman (1958) have pointed out that perceptual organization is powerfully determined by expectations built upon past commerce with the environment. This means that individuals can improve their own self-confidence through successful practice in decision-making. Facility in responsible decision-making is certainly an implicit goal of present American educational philosophy. Insofar as decision-making in the matter of vocational appraisal is connected with reliable information, computers could provide the most accurate and global information in the shortest and most economical way. One example comes immediately to mind. As all counselors know, the problem of amassing a comprehensive vocational and occupational information library is that it is usually out of date by the time it is collected. Why not keep a computer up to date on employment statistics, vocational trends, and other relevant occupational and vocational information?

Finally, computers can provide individualized reports relating to risk-taking. At present, the Institute for Personality and Ability Testing (1964) has developed a computer program for scoring the results of the 16 Personality Factor Test and returning a written report interpreting each of the test variables. Though this report still deals with rather narrowly circumscribed psychological traits, the same type of reporting could be designed to handle specific vocational questions and expectancies of collegiate success in alternate curricula and institutions.

The Counselor and the New Technology

Both high school and collegiate counselors are directly involved in this question of testing for higher education. They will very often be the people who make the interpretation of tests, who help an individual student make up his mind regarding his choice of curriculum and college. The counseling transaction in this sense involves communication and to a certain extent teaching. For as Green has said (1964) teaching may be considered as an activity in which a partial goal is the development of rule-directed conduct in others. Counselors are not concerned broadly with helping others to develop a blind conformity to criteria of cultural evaluation, but with the implementation of understanding as to how individual goals can be obtained within the context of cultural criteria.

Perhaps the time is upon us in which some important issues in the whole area of counseling as a method of inducing behavior change will be clarified. Barclay (1964), in a resumé of some of the underlying problems that have brought about the attack on testing and counseling, suggested that counselor educators had not yet come face to face with some of the real issues of their counseling models. In a letter commenting on this article Stone (1965) pointed out there would appear to be two streams of counseling thought, one of which represents a humanistic and philosophical concern, and the other a scientific position. The recent articles of Krumholz (1964) and his concern with finding specifiable and concrete outcomes to measure success in counseling practice, the reactions of Patterson (1964) and Berger (1964), all accent the same very real problems. These may be identified as problems concerning goals, problems concerning criteria of evaluation, and problems concerning method.

With regard to the goals of the counseling process there are possibly more areas of agreement than disagreement. Most counselors would agree that the central goal of counseling is to effect some kind of behavior change. Even in simple requests for information, the counselee is attempting to become more well informed so that his decision-making will be enhanced. The entrance of testing into this communication process is not so clearly agreed upon. The arguments of the humanists state that the individual alone is capable of assessing his own behavior in the most global manner. Thus the individual becomes an existential moment. Our best examination of methods of personality assessment and appraisal leads us to con-
clude that testing procedures take only a sampling of human behavior at some given point in a geometric intersection of time and space. Comparison to mean scores and discussion of deviations from the mean then become somewhat irrelevant in terms of the existential nature of the self. This philosophical deduction has been manifested by those who consistently downgrade the use of testing in counseling. Patterson (1963) reluctantly concedes that testing may have some utility, but is obviously somewhat disturbed about the intrusion of testing into the existential communication process. Rogers' position is consistently suspicious of testing as a form of pre-judgment.

On the other end of the continuum are those counselor educators and theorists who emphasize the determination of goals in counseling as one of the paramount problems in the hierarchy of assessment of counseling. Krumbloltz (1964a, 1964b) suggests that one of the major problems in present-day counseling is the inability to specify the behavior changes toward which we are willing to work with individual clients. The identification of these possible behavior changes calls for some decision-making on the part of the client, and then counselor recognition of the specific counselor activities that will promote these behavior changes. Krumbloltz wants to be able to determine the answer to a very important question: what specific types of action can a counselor take to help clients achieve the type of behavior they desire? Testing in this perspective takes the form of helping an individual recognize his individual strengths and weaknesses, and also provides one possible means of assessing the degree to which the counselor has helped his client achieve the type of behavior desired.

Some of the real issues between these two approaches to counseling center on the question of the criterion of effective counseling and the means-end ordering of procedures. The question of criterion determination is as complex as the philosophies underlying these points of view (i.e., existentialism and scientific realism) and the conflicting values of American society. Were there demonstrable external criteria of effective behavior in our society, as in some of the monolithic systems of the past, effectiveness in counseling could be directed towards some kind of conformity to the system. Thus, for example, in a religiously oriented society where a definite set of standards were promulgated and upheld, the measure of successful counseling could be determined in terms of the gradual congruence of the client with the external value system. In a society where complex values and goals exist which reflect different value systems, the reliance on an external criterion is more difficult. Thus the humanists have felt that a criterion of effective counseling can be established from the verbal report of the counselor, or from a counselor judgment. This counselor judgment presumably is made on the basis of client growth towards self-actualization, self-understanding, individual insight, or some kind of tangible evidence of adjustment to reality. However, direct or indirect conformity to counselor standards (whether psychoanalytic, phenomenological, or behavioristic) may be interpreted as just one more environmental "press" felt by the client and resulting in behavioral congruence towards the counselor's expectations.

On the other hand, some internal criterion such as insight or internally dependent criterion such as counselor judgment would seem to fail to qualify as a true criterion. The utilization of the internal frame of reference as a criterion of effectiveness in counseling would seem to be parallel to the use of factor-analysis and intercorrelations as a criterion of testing. One can see a whole host of mistakes in deriving test criteria from testing and then applying these test criteria to counseling and vice-versa. For counseling and testing are two different procedures. In counseling, emphasis is on individual change, and testing, of course, implies comparison with a group. Ultimately, however, both counseling and testing are subject to the criterion of effective human behavior in various contexts.

Is there a resolution to this problem of criterion determination? Krumbloltz thinks that more effective decision-making may be one criterion which can be used. In taking this position, however, he recognizes that the changes that are to be produced in counseling must be individually determined for each individual client. Effective decision-making thus emerges as a sub-criterion relating to the ultimate criterion of effective human behavior. An individual whose problem is shyness may demonstrate the results of effective counseling through enhanced interpersonal relationships, reinforcement of self-reliance, and generally more effective human behavior.

The second issue involves the means to be employed in effecting behavior change. The humanists are dedicated to the assumption that the way to effect behavior change is to help the client develop insight and self-understanding about himself. This has reference to the criterion of self-direction and more effective behavior organization. This insight or self-understanding is presumed to exert a causal relationship to the establishing of new and more adequate patterns of behavior. More tenable is the approach to behavior change that involves helping the client to modify his behavior with the assumption that a positive modification of behavior in itself will bring about attitudinal changes. It is at this point that testing results can play an important role in effecting behavior change. For the use of testing information in counseling practice may be a
strong determinant in planning with the client for new kinds of behavior.

Nor are the fears of the humanist counselors realistic in supposing that the new technology will provide a "predestination" approach to counseling. Far from reducing the role of the counselor, computer technology in information-giving will enhance his function. For the counselor, too, will have this relevant information, and providing he conceives himself as a catalyst in this decision-making process, this information will be useful. The counselor can then proceed to discuss either in groups or individually the meaning of the test data and provide opportunity for an exploration of possible courses of action. The two processes that are involved here are on the same continuum. One involves the problem of getting adequate information, and the other the decision-making process. Of course sometimes good decisions can be made even without comprehensive information, and conversely, all the information in the world will not force an individual to make a judgment that he is unwilling to make.

From the point of view of counseling theory, the assets of such information receiving can be related to reinforcement procedures in learning theory. The computer reports will either provide reinforcement for present modes of learning behavior or motivation for change. It is conceivable that some students will choose to ignore such communication. But this too is a decision that will have consequences. The transmittal of this kind of information will provide the occasion for counselors to effect the most meaningful and personal interpretation of essentially impersonal comparison data. A form of operant self-conditioning could take place through the use of automated or semi-automated counseling devices. Gilbert and Ewing (1964) found that inappropriate college choices could be modified by presenting students with a programmed booklet that informed them of their probabilities of being admitted to each of several types of colleges.

Some humanistic counselors will object to this procedure on the basis that the counselor has made a choice for students or at least has determined what they are capable of. The same arguments hold against the use of computers or any tests at all. Testing devices do not predestine, but they do provide information that is helpful in decision-making. The stance in counseling theory that everyone can become everything is totally unrealistic. As Krumboltz has put it (1964):

Obviously everyone is not going to get his first choice in life. The counselor's job is to help students find alternatives, face facts, calculate odds, weigh values, establish priorities and implement action. If it knew of the possibility and the odds, a sow's ear, instead of aspiring to be a silk purse, might prefer to be a pigskin wallet (p. 16).

Far from imposing a set of values on individuals, the use of advanced technology should provide for a more realistic basis in individual counseling. Moreover, this orientation might positively promote mental health in a much sounder way than encouraging young people wholesale to obtain some kind of college education at all costs. Since individuals are unique, counseling in the future should use testing as an aid in the clarification of alternate decisions, but not as an end in itself. The client-centered posture is unquestionably included in this counseling. But the unreasonable mystique of so-called nondirective counseling that any kind of reality direction or orientation impinges on the right of the individual to make his own decision is categorically denied. Effective human behavior is measured by the criterion of cultural context. Life is filled with modeling, social pressures, and methods of bringing about conformity. The alternative to reasonable conformity is solipsistic deviation. One need not be unrealistic in the question of social reinforcement to recognize the existential nature of the individual. It will still be the individual who will set the dimension of his problems. It will still be the individual who will have to act on the information he possesses. But the quality of information available for these decisions should be substantially increased. The general position of the counselor will be that of helping individuals improve their own problem-solving, clarifying appropriate courses of action, and encouraging them towards realistic and meaningful personal goals.

The counselor who is concerned with the modification of behavior towards appropriate collegiate goals will be taking the position identified by Fricke (1956) when he suggested that it was the business of the test researchers to constantly strive to improve the quality of prediction, and the duty of admissions officers, and we may reason by extension, counselors, to attempt to defeat the prediction. This is, of course, not to say that individual students who show a high probability of success in a given curriculum and are satisfied with this aspiration should be discouraged, but rather that students who have a low expectancy of success should be encouraged to do those things that are within the reasonable range of success. For the decision-making process described here does not imply that the goal of counseling should be the teaching of individuals to make decisions with low risks, but rather to inform individuals of the risk that they are taking, understanding that the judgment of a good decision is not so much whether it is absolutely the correct one, or the one most in tune with reality, but rather the one in which an individual is willing to accept the consequences of his decision.  

Perhaps it is an all too easy dichotomy to view counseling and counseling theorists as divided between

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1I am indebted to Dr. Clyde Parker of the University of Minnesota for the substance of this observation.
humanistic and scientific groupings. But it would appear to this writer that the disregard of testing data is as dangerous as overreliance on it. Like the scholastic resolution of faith and science, it would appear that we need to realize the multiple dimensions of the counseling process. Perhaps faith is needed in the humanistic aspect of counseling. The resolution of criteria of individual behavior and the means to obtain them is dependent not only on the communication of information, but on the commitment that the counselor provides through the whole range of his verbal and nonverbal communication. It also requires a nonjudgmental stance, an accepting attitude, and other counselor inputs which cannot be measured by such a simple outcome as effectiveness in client decision-making. On the other hand, the desire to evaluate this process by some objective means is most important. Therefore, a continued search should be made for criteria that are capable of being measured, recognizing always that any testable criterion has its limitations. But whether one speaks of the more intangible criteria of self-understanding and insight, or the specifiable one of effective decision-making, it is more than likely that the communication of test information as a means to decision-making may be a most effective means to attaining the long-range goals with which the humanists are concerned.

Improving the Quality of Learning

Though technology and counseling will be important in providing communication about test scores and risk-taking, the educational establishment will benefit most from these techniques if it attempts to do something about evaluating the process of education more precisely. Those who fear the control of automation, computers, and testing need be threatened only if they continue to abdicate their responsibility for a clarification of the goals of education and an examination of the process. One of the most promising developments in recent years has been the systematic attempts made by some researchers to measure classroom climate (Hughes, 1959; Flanders, 1960; Medley & Mitze, 1963). These reports of research approached the classroom climates of learning as unique phenomena which can be evaluated and categorized through systematic observation. More understanding of the dynamics of classroom groups may help to establish operational criteria for evaluating philosophic goals. For example, the story is told of an instructor who wished to foster more group participation. Initially favorable to study of the teaching process by a group of observers, he was astounded to learn that he discouraged group participation by making comments about student contributions such as: "That's not a relevant conclusion," or "I don't think that is a good idea." Is it a wonder then that students refuse to be cooperative or make remarks when they are often subjected to this type of negative social reinforcement?

High school faculty as well as college faculty need to know something about the nature of learning in a social setting. Far too long have college faculties been exempted from the dimensions of social learning theory. Every college instructor ought to be required to study the learning process particularly as it relates to social reinforcement, imitation, modeling, shaping, and determining of behavior. Moreover, one wonders how long educational psychologists will continue to discuss a potpourri of various learning theories, few of which have any power functions in terms of the actual teaching process. Whatever one may think about the philosophical bases of Skinner's thought, the fact is that his approach to learning is one which can be demonstrated and observed in the teaching process. Bandura and Walters' contributions to social learning theory (1963) are important extensions of this approach.

Both high schools and institutions of higher learning will profit from a recognition that various kinds of abilities among students should be encouraged. Students with a high degree of creative ability could profit from attending institutions where programs of independent study are being used. These creative individuals often show creative performance in high school or earlier. They can be prepared within the high school for successful experiences in college by enrolling them in enrichment seminars or helping them to spend some time in a collegiate setting. Rothney at the University of Wisconsin has directed a program whereby talented youth are brought to the campus for an orientation period in which they can meet with professors in areas of their interest and learn about the University. Fink (1963) described an enrichment program wherein juniors and sophomores in high school attended enrichment programs at certain institutions of higher learning. These programs took place during the summer on the collegiate campuses. It was observed that, when these students reported the results of their summer study to other students, a great deal of intellectual stimulation took place.

Both high schools and colleges can help to provide additional stimulation for students by specialized programs. Hatch (1962) has described a number of programs that are currently in existence. The waiver of course requirements through special examinations at the University of California (Santa Barbara campus), Brooklyn College's exemption of students from attendance requirements, the tutorial plans of Harvard, University of Michigan, University of Chicago, and San Francisco State College, and the senior colloquia of Stanford University are all examples of special kinds of programs designed to foster and augment independent critical study by creative youth. These programs,
Hatch suggests (p. 21), should be flexible, an integral part of the college's program, tolerant if critical of the old methods (lecture and laboratory) and also of the new (Socratic and case records). They should emphasize generalizations without disparaging particularization and should utilize the teacher in a variety of ways. These programs can clearly help the creative and gifted youth of our society to pursue academic excellence at a more rapid pace than that of other students. The accent here is on independent study and achievement. Early admissions to collegiate programs and to graduate study can also be of assistance in facilitating the goals of such programs.

Though these programs are certainly advantageous, it would be unwise to have only a few institutions concentrating on this approach to learning. One of the possible bad effects of testing in higher education is the tendency to create such homogeneous groupings of students that something is lost in not providing students with the kinds of educational environment more typical of the broad cultural spectrum of our society. Hopefully, special study programs will become a typical development in many colleges and universities. The same may be said for admissions based on something other than single test scores.

Much has been written about the creative and highly intelligent youth. Less has been said about the middle range of ability students who comprise the vast majority of college-bound youth. Here a realistic approach would suggest that perseverance, good work habits, and systematic personal controls are factors that predict success in college. There is some evidence that this group of students benefits from traditional approaches to learning. Ward (1956) found that highly able students obtained more from small classes than students with lower achievement. Calvin, Hoffman and Harder (1957) observed that authoritarian approaches to problem-solving were more effective with less capable students than with high ability students. These studies suggest that there will always be a place for large lecture survey courses and that students in the middle range of ability may profit from such traditional approaches to learning.

A third group of college-bound students are marginal ones. They have a record of mediocre achievement, but still wish to attend college. One may question whether all of these students may be accommodated in four-year institutions. It is also very possible that some of these students may be potentially excellent material for higher education. The problems of culturally disadvantaged youth, the failure to develop proper study habits, the inadequacies of our present testing procedures, and the poor motivation for learning acquired from the environment all need to be met and overcome. Perhaps the use of special summer camps or programs of a residential nature can open a way to providing the enrichment that these youngsters need.

Remedial instruction and counseling are also indispensable links in the effort to learn for these individuals. Schvitzgebel (1964) has reported a technique for reinforcing more appropriate social behavior on the part of adolescent delinquents. Though his sample was not a collegiate one, there is evidence that similar techniques could be used in both high school and lower grades to effect behavior change. Anxiety has been identified as a factor in academic success (Sarason, 1961). This variable can be directed into proper perspective through group counseling in college (Spielberger, Weitz & Denny, 1962). The role of the college counseling center is an important one with these marginal students. Automated techniques and learning laboratories with resources for individual study are also important if the institutions of higher learning are to fulfill their commitment to these students (Engstrom & Whittaker, 1963; Harcleroad, 1964). Harcleroad and his associates have pinpointed the specific ways in which audio-visual laboratories and a division of learning resources can benefit the total college community. This division can offer services to college faculty in test construction and evaluation. It can also take an important part in evaluating the outcomes of teaching. The use of television, slides, and other audio-visual equipment can become an important part of individual study. With increased technological developments it should be ultimately possible to place introductory courses, exceptional lectures and technical instruction on visual tapes and devote class time to discussion.

A final and important aspect of improving the quality of learning is the establishment of training-research programs for college student personnel work. Somehow, the question of criterion evaluation and the reporting of research findings must be included within the range of graduate education. With the proliferation of junior colleges, the demands for college student personnel work will continue to accelerate. These individuals must be trained in the analysis of data, the determination of criteria and predictors of success, and the interpretation of this information to lay audiences. What is here said of college admissions officers and student personnel workers is also true of public school personnel. Advanced training in counseling should include a thorough evaluation of the scope and meaning of testing in decision-making. School psychologists, research personnel and others must not only comprehend the basic rationale of testing in general, but be able to translate the findings of research into the local educational curriculum.
Behavior Modification and Control

If the model for testing for higher education is really to work, it is not enough to outline the fact that criterion definition must go on, and that more accurate predictors be found. Nor is it sufficient to point out that counselors, admissions officers and the cause of education in general are all involved in this matter. What is needed is to identify the ways and means whereby this model can be achieved.

It would appear that this whole problem is really one of behavior modification and control. Mention has already been made of possible avenues for higher education to use in defining more adequately criteria of effective collegiate behavior. It has also been stated that education needs to guide the development of criterion evolution. It is now suggested that education needs to plan to bring about the development of a “goodness of fit” model through appropriate behavior modification techniques.

In any attempt to change or effect behavior modification, there would seem to be three generic methods that can be used. One of these is concerned with exercising some kind of influence or effecting some kind of change in the behavior of individuals or groups. This can be done through the medium of interpersonal relationships by social reinforcement of appropriate behavior through the process of counseling either in individual or group sessions, through the use and reporting of test scores, and a variety of other means whereby the individual is made aware of the fact that a change in his behavior is desired. As has been mentioned earlier, much of counseling involves the assumption that change in a client’s behavior can be effected through a gradual conformity to the point of view of the counselor. In psychoanalytic thought this means in effect that the client becomes more attuned to the values and epistemology of the psychologist. This process assumes further that the psychologist’s conception of reality is more realistic than the client’s. So too, in existentialist or humanistic counseling, the goals may be either to see the client become less judgmental or more capable of understanding himself. In the experimental approach to counseling, the client may soon learn that decision-making is what the counselor wants him to do. These efforts to change behavior may be very indirect or oblique, but in every one of them it is assumed that some change in behavior is a goal. Changes in behavior can also be effected through the use of authority, whether civic or religious, political or educational. In effect, all of these means to effecting behavior change entail a transaction between individuals, groups, or organizations wherein verbal or nonverbal communication is used together with modeling, imitation, cues and social approval or disapproval to bring about certain kinds of behavior.

The second alternative in changing behavior is environmental manipulation. This approach makes more direct use of what Skinner and others have called operant conditioning. Through careful control of environmental processes and pressures, individuals are brought to new behavioral responses. Older or more unsuitable forms of behavioral responses are extinguished and newer ones are formed through suitable reinforcement procedures. This approach entails the use of environmental controls.

A third approach makes use of a combination of the two others in a comprehensive effort to modify behavior. Much of adult counseling or behavior change is in response to the first method, whereas environmental manipulation or control would appear to be most helpful in directing the learning behavior of children.

The use of these methods of behavior modification occurs every day in countless thousands of incidents. Children are constantly being molded by the reinforcement techniques of their parents, the school, and society. The complexities of reinforcement in a multiple-values society such as ours are most difficult. But if there is any generalization that can be made about such reinforcement procedures, it is that we learn by doing. Behavior modification in our own personality is tested in the crucible of experience. When we make a judgment that such a course of action is expected of us and we do what is expected, we look to see what kinds of reinforcement we will receive from the behavior. Gradually, we learn what is expected of us and how to fit our own individual desires into the pattern of accepted human behavior.

If the model for testing for higher education is to work, it is apparent that hundreds and thousands of college and high school personnel will have to be convinced that it is worthwhile. Experience in seeing the model work can be the single most important factor in the success of the model. To this end, it is not enough to attempt to convince college faculty that an environmental “press” does exist, and that their behavior in and out of class is both consciously and unconsciously reinforcing certain kinds of expectations. They must see this in action. They must observe it in their classroom. They must learn what are the appropriate techniques for effecting the kind of behavior which they wish. If, for example, they wish to develop habits of critical thinking, creative behavior, etc., it is scarcely sufficient to lecture students about this and then punish them for attempting behavior that is nonconforming. The demonstration of the principles of social learning and involvement of faculty from every discipline is neces-
sary to define the criteria of effective college behavior more precisely. So likewise is it necessary to make these demonstrations with high school personnel.

Some may object to this kind of behavior modification. It is not sinister, but involves the knowledgeable attempt of man to elicit his own criteria of effective human behavior and devise the ways and means of implementing them. There is room within the learning of social behavior for the incorporation of the most noble and idealistic concerns of man. World peace, control of means of disagreement between nations, and the promotion of higher education are all fitting subjects for behavioral modification. Nor should it be thought that conformity for its own sake will be the end product of such principles of social control. There is every indication that creative and divergent thinking would flourish under the appropriate system of social reinforcement.

A few examples may be helpful in clarifying what is meant by social learning and behavioral modification in this context. Nearly all who have worked intensively in the education of counselors have noticed that one of the end results of counseling practicum experience is change in counselor personality. All the didactic instruction about theory in counseling, ways and means of appraisal, etc., seems to bring about very little change in graduate students. But the practicum experience in which the neophyte counselor attempts to implement the procedures of Rogers or any other theorist results in social reinforcement of certain behaviors. The beginning counselor learns that certain kinds of responses elicit different kinds of behavior from the client. He also learns that there are more appropriate ways of dealing with individuals than through direct confrontation. Further, he becomes sensitive to non-verbal cues about behavior. As a result of his developing skills, he often transfers his counseling behavior to other dimensions of his life. When this occurs, the neophyte counselor’s interpersonal relationships with his family, other teachers and administrators often change for the better. A similar phenomenon occurs in practice teaching. Much of the theoretical instruction in the teaching process is relatively fruitless until the beginning teacher attempts to apply techniques in the classroom. The resulting reinforcement can either help to establish life patterns of teaching method or drive her out of teaching. The same situations exist in other internship settings in medicine or psychology.

Such internship experiences for beginning college faculty members or college student personnel workers would help in developing a sensitivity to what constitutes the teaching process and how social behavior is modeled. Of course, it will be difficult to convince college faculties that they should learn something about the teaching process. They will probably resist formal coursework or internship programs. But they might not resist the idea of analyzing a video tape of an instructor in a given subject field. Historians might feel comfortable in criticizing or evaluating a tape presentation by some historian unknown to them. The mutual analysis of the presentation plus the aid of a master teacher might result in the type of reinforcement that would bring about attempted change in classroom performance. If college student personnel and college instructors were to be exposed to the meaning and process of social learning in a non-threatening manner, this process could help them to be more effective in the ways and means which they choose to implement the goals of instruction.

Summary and Conclusion

It has been the argument of this monograph that the clearest way to improve testing for higher education is to clarify the criteria of effective human behavior in the collegiate setting. Good decision-making by both high school students and college admissions officers requires that this task be continually worked on. But the communication of information becomes a secondary goal for improving testing procedures. Under this heading comes a proper understanding of the perspective of testing as an assessment device within our culture. It is argued that testing is one of the most sophisticated means of effecting good decision-making. But the model proposed will not materialize unless there is a great deal of collective pooling of information and the mobilization of both technical and educational brain-power to this end. Further, the improvement of testing not only demands this kind of communication of thought, but a consideration of some of the deeper implications of what it means for man to attempt to control his own development. The task of testing technology is to constantly improve the predictors and criteria of collegiate success. The focus of professional education must be on the clarification of what constitutes effective human behavior in learning and means of improving it. The role of the counselor and admissions officer is to translate the information received from the other sources into workable techniques for decision-making. The welding of these elements can work towards the best “goodness of fit” approach to guiding youth into those curricula and institutions that are most realistically suited for their particular configuration of talents and abilities.

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