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THE PREDICTION OF VOCATIONAL SUCCESS

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One of the most important problems of youth is the choice of an occupation in which success can be achieved. No single factor is likely to influence an individual's happiness more than his occupation. So far-reaching are the effects of occupational choice that hardly any phase of a person's life escapes its influence. Personal and family happiness are in large part dependent upon the degree to which an individual enjoys his work. If he is capable of doing the work required in his occupation and is interested in it , he is almost certain to be a well-adjusted individual and an asset to his community. On the other hand, if his abilities and interests do not harmonize with those required in his occupation, he is very likely to become dissatisfied and fail to make many positive contributions to the lives of those with whom he may associate. Because of its great and lasting effects upon the life of an individual it seems fitting and proper that agencies should be established and techniques developed to assist youth in making choices and decisions concerning vocational life.

There are still those who say that young people should be left to their own resources and encouraged to shift for themselves in their search for a suitable life work. Many of these same people believe that if only an individual works hard enough he will be successful in his chosen field of work. Countless studies on the nature and distribution of human abilities show that there are decided differences between individuals in the abilities which they possess. This is amply illustrated in ordinary school work. Some pupils seem to learn in an effortless manner, whereas others spend long hours in study and even then do work of inferior quality. In almost every line of work the same picture is duplicated. Some individuals can hardly earn a living at their occupations while others become fabulously wealthy. Opportunity and chance play some part in determining who shall and who shall not be successful, but differences in abilities and interests should certainly not be ignored. The fortunate thing about it all is that most people are superior to the general average in some types of abilities and if they could be informed of this fact at an early age they would be able to capitalize upon it in making their vocational choices. Some individuals who are poor in science may be good artists, some who are weak in mathematics may be successful musicians,

individuals who have failed in salesmanship may become good scientists, and some poor teachers may make excellent housewives. Because of the differences in abilities which exist between individuals and the differences which exist in any one individual it is exceedingly important that these facts be made known to youth and that they capitalize upon them in their choice of an occupation.

The techniques for appraising individual differences can be classified as follows: (1) Ratings and observations, (2) School records, (3) Educational and psychological tests. The first and second methods of appraisal are available to everyone while the third is provided in an increasing number of schools, colleges, and private agencies. The young person who avails himself of the data provided by these techniques is certain to gain much in knowledge concerning himself and in ability to choose wisely among the wide range of occupations open to him.

Ratings and observations can be made both by the individual himself and by others who know him well. In general self-ratings have not proved very successful. Superior individuals are likely to under-rate themselves, whereas those who are inferior tend to over-rate themselves. Despite these shortcomings some teachers and counselors continue to recommend the self-rating scale as a valid measuring device. Such scales may have the virtue of stimulating the individual to think about his strengths and weaknesses but he should be warned of the unreliability of self-estimates. Unless an individual has had a very wide range of experience he can hardly be expected to possess the basis for comparison which is necessary for this form of appraisal. Good and poor ability are judged to be such in comparison with others and unless a person is unusually well qualified he cannot be expected to arrive at errorless judgments concerning himself.

Teachers and counselors are in a more favorable position for making valid ratings. By using well-constructed rating devices it is possible for trained raters to appraise with satisfactory validity aspects of behavior which could hardly be measured in other ways. To be sure, such judgments are subjective but the experienced teacher or counselor can, through wide experience, judge an individual in comparison with many other students whom he has known. For this reason such ratings are likely to be superior to those made by the individual himself.

Since young people are generally required by law to attend school until at least age 16 it is possible to obtain extensive records of educational performance for nearly everyone. The voca-

tional counselor is likely to ask immediately for school records because they provide a genetic picture of the individual's performance as judged by a number of different people. An individual's future can best be judged by apraising his past. It may be true that some school failures turn out to be eminently successful in their life work but in the absence of other data an intelligent interpretation of school performance is one of the more valid techniques for predicting vocational success. Frequently an individual must undertake additional training before he can enter his chosen field, e.g., law, engineering, medicine, dentistry, and teaching. Where such is the case the previous school record becomes extremely helpful in vocational counseling. In engineering it has been found that success in high school science and mathematics is a very good basis for judging probable success in future courses. Science grades in pre-medical work predict very well the student's probable success in medicine. The same is true of dentistry. The reasons underlying these findings are not difficult to identify. The work in the professional colleges is of an advanced character but sufficiently similar to some high school and college work to call for the use of the same or similar abilities. School grades have been severely criticized in recent years. Some of this criticism has been justified, but where a long time record is available such grades possess considerable merit as indicators of future success. For certain types of prediction they constitute the best sources of information available.

The development of educational and psychological testing has contributed much to the measurement of human abilities and interests. The norms with which standardized tests are provided make possible more accurate and precise forms of appraisal. An individual observer or rater must of necessity be limited by his experience and a teacher in assigning grades is likely to be governed by the range of talent enrolled in his school. All measurements of human behavior are relative and unless a satisfactory basis of comparison is available, measurements are certain to be in error. By controlling the stimuli to which an individual responds and evaluating individual performance by means of well-established norms, educational and psychological testing possesses the capacity for improving greatly the prediction of future achievement.

Because of the unreliability of some school marks and the possibility that they will be influenced by local conditions, it has been found profitable to supplement school grades with standardized educational achievement tests. These are now available in nearly

every subject matter field and when administered as a part of state or national achievement testing programs, they make possible a very desirable type of individual analysis. Such tests are usually very well constructed and therefore possess a high degree of validity and reliability. Of no less importance is the fact that the norms are based upon the performance of large numbers of individuals, thus making possible a more meaningful interpretation of a particular score or set of scores. A student who receives a high grade in a course is not always a superior student but if he ranks in the upper one percent of a population of ten thousand students one can be reasonably sure that his school achievement is of very high quality. The combination of school grades and educational achievement test scores constitutes, therefore, a very helpful type of information and assists greatly in predicting the future educational and vocational success of the individual.

The intelligence test represents one of the oldest and most widely used types of psychological tests available at the present time. Its value as a predictive instrument is indisputable. Innumerable studies have shown that intelligence tests predict very well the degree to which individuals are likely to be successful in school. As pointed out in a preceding paragraph, success in school is essential for entrance to many business and professional pursuits. An instrument which is capable of predicting school success is, therefore, indirectly a valuable index for predicting vocational success. In large scale intelligence testing programs it has been shown that occupations can be classified on the basis of the intelligence test scores of persons engaged in various types of work. Occupational rating scales such as the Barr and the Minnesota are based upon the finding that the average intelligence test scores of typical members of occupational groups vary from the relatively low scores made by unskilled laborers to the high scores of professional workers. Of course there are very wide ranges of ability in each group but in general it can be said that intelligence tests indicate the upper and lower limits of intelligence required for success in various fields of work. For example, it would be quite safe to predict that a high school student with an I. Q. of 90 would not make a successful physician nor would a boy of I. Q. 175 be happy permanently as a routine machine operator. However, it would be folly to predict that the latter individual will necessarily be successful. Interest, motivation, dependability, and other factors are certain to influence occupational success. The chief value of the intelligence test is, that by means of it, a voca-

tional counselor can inform an individual of the occupational level at which he is likely to be successful.

For successful participation in many occupations it is necessary to possess special aptitudes in addition to the required amount of general mental ability. All intelligent individuals are not necessarily good musicians and all outstanding musicians are not necessarily in the genius class of general intelligence. Apparently a special aptitude is required for success in this field. The same holds true for a large number of other occupations.

Mechanical aptitude tests represent one of the more widely used types of aptitude measures. Even without the benefit of tests it is possible to observe that some individuals are much more adept at mechanical pursuits than others of about equal general mental ability. Some persons of high mental ability may also possess high mechanical aptitude but this does not necessarily follow. Likewise some individuals of average or even below average general mental ability are superior in mechanical activities. Unfortunately, some academic persons assume that because a student is weak in ordinary school work he will automatically be successful in some trade. This does not necessarily follow. By means of suitable tests or try-out experiences the nature of the individual's special abilities should be ascertained. The identification and quantification of special aptitudes are, therefore, essential for the accurate prediction of vocational success.

Frequent reference has been made to the importance of interests and motivation in vocational success. Fortunately, it is possible to appraise an individual's interests with some degree of accuracy and thereby to enlighten him concerning fields of work which should prove interesting and challenging. Naturally, it is somewhat more difficult to construct tests of this nature because the individual's responses are likely to be less stable than in aptitude or achievement tests. The technique employed in one of the better known tests is to determine the likes and dislikes of persons already engaged in various lines of work and to establish interest patterns from these findings. When the test is administered to a student or job seeker his responses can be compared with those of persons already in the field. If there exists a high degree of correspondence it is assumed that the individual would be happy in that type of work. The scores are adjusted to minimize the effect of age differences between the standardization population and those taking the tests. Admittedly, interest measurement is rough at the present time and specific vocations cannot be recommended

on the basis of interest test scores, but it is possible to suggest general fields within which the individual can make a specific choice. In this respect interest tests are similar to intelligence tests. Both can help in suggesting general occupational fields but neither can point out the specific vocation in which the individual is most likely to be successful.

It is frequently stated that the most important factor in vocational success is personality. Some studies seem to show that many vocational failures are due to personality weaknesses of one kind or another. If personality is regarded as the individual's *social stimulus value* there can be little doubt that vocational success will be affected by personality factors. Many occupations require almost continuous association with other people, hence it is no surprise to find that success is influenced by personality traits. A salesman who irritates people cannot be expected to go far in his profession. Even in the technical and scientific fields a good personality is certainly not a handicap. Promotions and advancements in salary are frequently based upon personality as much as ability. Despite universal agreement as to the importance of personality it has not been easy to construct tests which measure satisfactorily these aspects of behavior. Observations and ratings appear to be more appropriate than tests at this stage in the measurement of personality. However, in order to make satisfactory predictions of vocational success, some estimate of the individual's personality is highly desirable.

The number of scientific studies describing the accuracy with which vocational success can be predicted is not very large. Many popular articles have appeared in the literature discussing the importance of various factors but their scientific accuracy is open to question. There is evidence to show that school marks are related to vocational success in scientific professions but for many business occupations the relationship is less marked. The only safe conclusion which can be drawn from the data is that in general, success in school is related to vocational success but the correlation is far from perfect. Until more data are available concerning specific vocations it would be unwise to generalize too widely concerning the predictive value of school grades.

In business personnel work it has been found that intelligence, special aptitude, and achievement tests increase appreciably the accuracy with which successful employees can be selected. Personality and interest tests have been found to be of more limited value. In the selection of clerical workers, apprentices, and cer-

tain machine operators tests have proven very helpful. There is no reason to believe that equal success will not be achieved in other fields but to date it has not been realized.

One of the major obstacles to high accuracy of prediction is the nature of the criterion. What is vocational success? Who is a successful worker? The almost universal answer has been the salary earned. However, it is a well known fact that for many types of work remuneration is not commensurate with service rendered. Supervisors' estimates are also subject to criticism. Production or sales records constitute objective records but they are sometimes influenced by factors beyond the worker's control. Until success is defined more precisely, accurate predictions cannot be achieved.

Summarizing, it can be said that observations, ratings, and tests furnish information about individuals which can be used in predicting vocational achievement. By constructing better measuring devices and defining more precisely the nature of vocational success it should be possible to make notable advances in this very important and interesting field.

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