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How Colleges Can Help Vocational Choices
A Survey of Vocational Guidance Activities of the
College Personnel Office

Karl M. Cowdery

In connection with an investigation of interests and attitudes toward many items of common experience, a group of 105 successful professional men, about equally divided among the three professions of engineering, law, and medicine, indicated as nearly as they could the period in their growth when they finally selected their life's occupation.

Twenty-one per cent reached their decision before entering high school, 65 per cent before beginning college. To the extent that these are representative, we can say that 65 per cent of professional men must receive organized vocational guidance and information before leaving high school if their choice is to be based upon more than haphazard and incidental, usually limited, experience.

Upon the elementary and secondary schools and upon the social influences which affect our population during the out-of-school hours of the corresponding years, there rests a heavy obligation to provide information and experience to future members of society in order that they may wisely and discriminately select their future vocation from a highly complex offering.

However, 35 per cent of our group did not reach their decision until after entering college. This suggests that unless additional and better facilities for guidance are made available earlier in the period of education there is a large problem, growing with the increasing populations of our colleges, of providing this aid in college.

Tools for Making Selection

By guidance we no longer mean that lucrative but unscientific method of the popular quack who looks at the shape of a boy's head and says he should be an executive. Careful investigations have proved the weakness of this type of "psychology." The more modern scientific methods and purposes of guidance in the public schools have been thoroughly outlined by Proctor in "Educational and Vocational Guidance," and need not be reviewed.

The movement for organizing junior high schools is attacking the guidance problem at that level. Differential curricula in senior high schools are being adapted to individual differences in general and special abilities as well as to varying interests and opportunities. At the level of college and university training, guidance needs to provide students who desire them the tools for making their own vocational selections.

If he has not already been tactfully informed in these matters, the high school graduate should be given advice as to whether or not he possesses sufficient general intellectual ability to invest the money, time, and energy involved in undertaking a college course; whether or not he shows the evidence of better equipment in one field than in another; and whether or not his attitudes,
personality, and temperament are of the right sorts for occupations which he may be considering as possibilities.

Community and high school libraries in too many cases lack facilities and organization for describing the personal ability, training, and activity required and the social, financial, and physical conditions surrounding the multitude of vocations and professions open to college graduates. In fact, even the best university libraries cannot give information on some of these points because it has never been tabulated, analyzed, and reported in usable form. Here, then, appears one of the important functions of colleges and universities, especially of those blessed with financial support and an administrative policy which fosters research.

Analysis of Professions

Analyses of the occupations and professions open to college-trained men and women are pitifully few and inadequate. Educational, social, and vocational advice has been given for years by faculty advisors, deans of men and of women, directors of personnel, and kind friends. However, the inadequate and narrow basis of this service is only beginning to be recognized officially.

Within the last two years a conference of interested teachers, the National Personnel Research Federation, and the American Council on Education, working through various colleges and other organizations, have set in motion a series of investigations which may be characterized as job-analyses of professions. These and other less extensive, independent studies will begin to provide the information about his possibilities which a student needs after he knows his own equipment.

Exhaustive investigation of professions on this job-analysis basis began with a consideration of the demands of the practice of medicine. Qualities essential to success in the engineering profession have been studied by C. R. Mann, using the questionnaire method.

Studies of the traits of professional men may be illustrated by one undertaken and recently reported by the present writer. The attitudes of successful members of three professions were recorded by means of a test situation. Their responses were analyzed and a scheme organized whereby the reactions of new individuals may be fairly accurately classified and compared with those characteristic of the successful professional men.

Physicians were found to give responses so typical that without knowing anything else about them a person might sort the test papers of doctors and non-medical men into two piles with 85 per cent accuracy. Slightly better results were obtained with engineering-type responses. Lawyers could not be so efficiently classified because the characteristics which distinguished them from doctors and engineers were shared to a considerable extent by business men, students of journalism and of political science, school teachers, and women of miscellaneous occupational groups.

Max Freyd, B. V. Moore, and M. J. Ream had previously sought the characteristic interests of various occupational groups by use of a method of which the foregoing is an adaptation. Ream combined an interest analysis blank with various other devices to identify successful salesmen. Moore differentiated salesmen from design-engineers. Freyd found characteristic differences between what he called the mechanically and the socially minded members of educational groups.

Use of Intelligence Levels

These studies represent an empirical analysis of the traits possessed by mem-
bers of occupational groups, just as the occupational intelligence levels established from the Army Psychological Service data by Douglas Fryer demonstrated major differences in general intelligence between the members of different levels or groups of occupations (skilled vs. unskilled labor, the professions vs. skilled labor, etc.), but indicated only minor and practically insignificant differences within a single class of occupations; e.g., engineers as compared with doctors.

The Prediction of Abilities

Another type of study which is being prosecuted in university educational research and which is vitally related to the guidance movement is that which delves into the measurement and prediction of abilities, both general and specific.

The general intelligence test developed by the Army Psychological Service proved to have considerable value in differentiating three main groups: (1) Those with ability for the highest type of training, that is, for commissions, at one extreme; (2) at the other extreme, those equipped mentally for the simplest kind of labor under close supervision, with occasional cases of men with not even sufficient intelligence to serve in the army at all; and (3) the large middle group capable of semi-skilled and line service involving less intensive mental training and equipment.

Following this lead, tests more or less modelled after the Army Alpha Test have been worked out by university research and adapted to specific educational uses. University research facilities have made possible tools not only for college use but also for application in school organization of all levels. Elementary schools have been provided with tests whereby pupils may be classified into slow, medium, and fast-moving groups (in terms of speed and breadth of learning).

Pupils may be identified further as those who will profit by long intellectual training for professional service, those whose general ability is more suited to the training which may end in the midst of college years or at the close of school and whose training in early years should be as practical as possible, and those whose intellectual training may well be limited to the minimum essentials of good citizenship followed by practical experience. The distinctions, as was the case in the army data, are those between general levels of training rather than between specific occupations.

For the uses of the universities themselves there are various general ability tests designed primarily to distinguish among high school graduates those mentally equipped to profit by college and university training. Where scholarship indicated by academic grades is used as the measure of college success, general intelligence tests of the type of the Thorndike Intelligence Examination for High School Graduates, Thurstone's American Council on Education Intelligence Tests, Brigham's Scholastic Aptitude Test, and various locally developed tests have been reasonably successful in pointing out at the beginning of their college careers those students destined to failure, those mentally equipped for distinction, and a middle group for whom the relative standing within the group limits is probably largely determined by other factors in the situation than those measured by the tests.

The safest uses of classifications by test score, in view of the recognized errors involved in group examination methods, are those in which the test results are combined with various other
items of information such as previous scholarship, personality ratings of industry, thoroughness, ambition, and interest.

Adequate measures of these other traits which are recognized as vital elements in meeting the social and academic situations of college life have not yet been produced. Consequently, prediction, advice, and guidance must use known tools conservatively and seek to improve the points of weakness as identified.

Achievement Levels

General ability has been discussed in relation to levels or general objectives of education. Within each level distinctions are still to be made by the individual who is attempting to find his own proper niche.

The interest analysis already described has delved into one phase of the problem. The Iowa Placement Tests represent another approach. Four representative fields of college work are investigated, English, mathematics, science, and foreign language. Tests are offered for the measurement of aptitude for each of these divisions separately. Examinations tending to classify according to the extent of achievement accompany the capacity tests. Progress in physics, chemistry, biological science, English, French, Spanish, and the various steps of mathematical training can all be measured and compared with the capacities indicated by the parallel series of tests.

A combined score on eight of these tests has been found to be as good, if not a better measure of general academic ability than other tests designed for that particular purpose. A correlation of +.75 has been found between all grades of a semester of college and the composite placement test scores. This may be compared with correlations of from +.35 to +.60 usually found between scholarship grades of freshmen and general intelligence test scores. This combination of tests is particularly promising for college use in connection with guidance, which will recognize both capacity and achievement.

Professional Aptitudes

Another type of aptitude test is based upon analyses of the specific requirements of various professions. Among the pioneers in this field is C. E. Seashore, who has analyzed musical ability into its components and then devised tests of the extent to which individuals possess the elements. If a student wishes to undertake the training for a musical career, these tests can be used to inform him as to whether or not he is equipped with the necessary command of rhythm, sensitivity to pitch, intensity, and tone, equality differences. The more intellectual factors of a musical career may be approached by means of general ability tests. Possession of the separate elements of musical ability does not guarantee a prima donna or a brilliant composer, but the lack of one or more of these capacities may be offset not even by an intense desire to be a musician.

On a somewhat similar plan, L. L. Thurstone has drawn up a set of tests known as Vocational Guidance Tests, but which might more properly be called engineering fitness examinations. The tests, based upon the standard requirements for entrance to engineering schools, measure ability to handle problems of arithmetic, algebra, geometry, and physics as well as the applicant's equipment of technical information picked up from general sources. Correlations of scores in these tests with success in earning grades in the engineering schools, represented by coeffi-
eients between +.23 and +.42, indicate some predictive value for these tests. But the fact that the coefficients are not larger suggests that other important factors remain unmeasured.

A test of legal ability which is similar in method to general intelligence examinations, but makes use of material common to the study of law is being investigated by Ferson and Stoddard.

To summarize, the college and university have their places in the vocational guidance field in gathering and making available information about occupations and professions with research into methods of identifying, measuring and predicting the abilities, traits and other qualifications necessary to success in these vocations; with preparing for professions demanding university educational training organized on a basis of carefully determined requirements, not necessarily the accepted traditional program; and with providing their own students with guidance suited to their particular needs.

Undertaking Guidance Work

To carry on all of these functions successfully, a college needs in its organization features represented in several forms in various American universities. Researches into measurement by tests and ratings are being carried on in the graduate divisions of nearly all universities.

Northwestern University and Wellesley College, through their directors of personnel, and Oberlin College, through its Vocational Information Bureau, represent a group of schools with members of their staffs appointed to handle personnel activities as a separate function. They organize and analyze details of information about their students, administer tests and study the results, confer with students on matters of personal and educational adjustment, and consult with faculty members as to problems of class organization and the progress of individual students. The Educational Research Bureau of Ohio State University, the personnel research director of Stanford University, and the faculty research committee of the University of Minnesota emphasize the investigative phase of university guidance.

Faculty advisors, department heads, and administrative committees have the direct contacts with students and maintain a personnel point of view throughout the entire staff of a university. The research problem is to supply these individuals and committees with scientific data upon which they may base their advice. This may be known as service research in contrast with pure research, which is constantly broadening the general knowledge of human activities and incidentally, but no less significantly, making its contributions to the improvement and progress of modern education.

Another activity of college guidance may be mentioned. Certain elementary and secondary school organizations are not large enough to justify a full time staff for their own research and guidance activities. Cooperative supervision of guidance programs in several such schools, if conveniently located, may well be provided by experts connected with a university. From this service is developed a stronger educational organization in the lower schools and a point of understanding contact between schools of various levels.