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ABSTRACT

Four papers presented by American Institutes for Research personnel review Project TALENT developments. The impending Five Year Career Data Book is introduced in David Tiedeman's paper, "A Career Data Book for the First Five Years After High School." For each of twelve career groups a descriptive statement provides information on training, outcomes, relationships, salary, and presence of women; a profile of test data and information blank scores is also included for each. "An Application of the TALENT Data Bank in Career Decision Making," by Judith M. Melnotte, describes an individualized, goal-oriented curriculum using the TALENT data bank in career choice. James Dunn, in "Career Education in the Elementary and Junior High School," outlines AIR's Career Education Development Project for grades K-9. It is a two-year, eight-school project defined by approximately 2,000 behavioral objectives. In "Ever Heard of an Effective Career Planning Model that Lasts?" G. Brian Jones discusses impediments to longterm empirically-validated career guidance in the past and presents a planning model for introducing occupational concepts and data into school systems. (MS)

PUTTING PROJECT TALENT'S CAREER DATA INTO CAREER EDUCATION: A SYMPOSIUM

ORIENTATION

Project TALENT is a long-term longitudinal study of the educational and occupational histories of a five percent random sample of high school youth tested in 1960. The 1960 test patterns discriminating among the occupational memberships of students five years after their expected years of graduation are just about to be published as The Career Data Book: Results from Project TALENT's Five-Year Follow-Up Study.

The present symposium first briefly describes Project TALENT and then introduces its impending Career Data Book. Next, the adaptations in education required for its individualization and the introduction of occupational data and decision-making into its structure are described. Project PLAN is a curriculum with these intentions in which Project TALENT data figure. The emergence of career education on the current scene is then considered and a Career Education Curriculum Development Project is introduced. The symposium concludes with presentation of a planning model for introducing occupational concepts and data and career decision making into school systems and examines why such planning has not occurred and has not been effective in the past.

A CAREER DATA BOOK FOR THE FIRST FIVE YEARS AFTER HIGH SCHOOL*

David V. Tiedeman
American Institutes for Research
Palo Alto, California

DESIGN OF PROJECT TALENT AND OF THIS COLLOQUIUM

Project TALENT

During 1959-60, an approximate 5% stratified random sample of public, parochial, and private high schools was selected for inclusion in Project TALENT. Approximately 400,000 students in grades 9 through 12 were included in the Project by this procedure.

Each of these 400,000 students sat for a two-day battery of tests and inventories during spring 1960. The TALENT test battery consisted of numerous information, achievement, and aptitude tests and also of three questionnaires or inventories. The Career Group analyses reported later involve the use of 109 predictive variables from the battery--65 cognitive variables (test scores) and 45 noncognitive variables (based primarily on responses to questionnaires). These 64 cognitive and 45 noncognitive variables are listed in Table 1.

Table 1 about here

TALENT and this Colloquium

Prior analyses of TALENT's foundational data have already provided both a national inventory of human resources and a set of standards for educational and psychological measurement which were called for in two of TALENT's goals. Other prior analyses which combine foundational with the follow-up data to be

*Revised paper of Symposium, "Putting Project TALENT's Career Data to Proactive Use," APGA Convention, San Diego, California, 10 February 1973.

specified more fully later have also provided both better understanding of how young people choose their life work and identified educational experiences which better prepare students for their life work. These are two more of TALENT's original goals.

TALENT has from its inception had the fifth goal of providing a comprehensive counseling guide indicating the patterns of aptitude and ability which are predictive of success and satisfaction in various careers. I have the opportunity today of introducing a soon to be released Career Data Book which represents the Project's own first step towards providing the promised guide. You will then hear from my colleagues how other projects at the American Institutes for Research have taken some of TALENT's data which will be a part of the new data book and used them for other purposes, particularly those of helping students both pick career goals and fit career's into life's satisfactions. This is why we considered it important for all of us to speak in this colloquium on "Putting Project TALENT's Career Data to Proactive Use."

TALENT'S FIVE YEAR CAREER DATA BOOK

Project TALENT's Follow-Ups

In order to fulfill the last three of Project TALENT's purposes, it was understood that the students tested in 1960 were to be followed-up approximately one, five, ten, and twenty years after their graduation to provide sound and solid data on the union of education and work in the adult years. The final data on the five-year follow-up became available at the end of 1971. The Project was therefore able in 1972 to undertake provision of the promised counseling guide based on the former students' educational and career histories during the first five years after their expected year of high school graduation.

All questionnaires in the five-year follow-up included a common core of items tapping information vital to the study of further education, jobs, and career plans. The questionnaires emphasized questions about entry jobs, long-range career plans, family establishment, college, and military service. The questionnaires were designed as simple factual data-collection instruments and were self-administering as a result.

Career Groups

In constructing a Five Year Career Data Book, we first had to develop a practical occupational grouping for use by students in planning their careers. Dr. John C. Flanagan who is TALENT's originator and continual Principal Investigator developed the occupational grouping finally used. His grouping is described fully in Chapter 6 of Five Years After High School (Flanagan, Shaycoft, Richards, and Claudy, 1970).

Although it is possible that data from the eleven-year follow-up study may modify some of Flanagan's original groups, the general agreement between the results for 11th- and 12th-grade students in the five-year analyses indicates that they should be very useful for general guidance purposes. Table 2 shows the occupations used in the final analysis for males and females grouped according to the final classification into the 12 career families.

Table 2 about here

The Five Year Career Data Book

Flanagan's Career Groups are a set of empirically derived occupations for which you can be rather certain that the occupations within a Career Group are fairly homogeneous in their cognitive and noncognitive personal characteristics in high school as well as being relatively certain that the occupational set of one Career Group are fairly distinct in their overall pattern of

cognitive and noncognitive scores from the occupational set of any of the other 11 Career Groups. Furthermore, in the data I am about to illustrate you can be fairly certain that the members of the occupational or Career Groups who are defining the pattern under consideration actually have elected the occupation and undertaken either preparation or direct work experience verifying the occupation as one to which they have committed significant time in their lives. Thus the Career Group and occupational data in the forthcoming Career Data Book are both quite definitive and fairly stable.

TALENT's Five Year Career Data Book uses the Flanagan Career Group as the basic organizational unit of the 12 concluding chapters which report for each of the alphabetically arranged occupations in each Career Group: 1) a statement of its importance and a description of needed training and work activities, outcomes, supervision and social relationships, salary, and presence of women in the occupation; 2) the profile of information and aptitude test data and interest and student information blank scores on the most differentiating variables in each category; and 3) a description of these profiles. The first two chapters whose titles are given in Exhibit 1 generally introduce the Data Book, TALENT tests, and Career Groups, and describe how to use the profiles of the Data Book.

Exhibit 1 about here

I do not have time today to go over TALENT profiles with you for each of Flanagan's 12 Career Groups. I will, however, illustrate how the Data Book will be organized and might be used.

In the first place, the Data Book reports profile information for a considerably reduced set of variables, namely those in more common use. They are therefore ones which the counselor or the student can estimate from

other than TALENT tests. By agreement with the U. S. Office of Education at initiation of the Project, TALENT tests are to be kept as instruments for the equating of commercially available tests, not commercially marketed themselves. Furthermore, the tests included in the profile are those 1) of sufficient length to have the needed reliability in individual counseling, and 2) bear the majority of the differentiation of an occupational set in one Career Group from the occupational sets of the remaining Career Groups.

The profile for the Career Group consisting of occupations in the Medical and Biological Sciences is also included for illustrative purposes as Figure 1. Chapters 3-12 in the Handbook will in their introductions contain profiles and descriptions for each of the 12 Career Groups because the first of two distinctions which the counselor needs to help his students make is that among Career Groups.

Figure 1 about here

An occupational description, an occupational profile, and a personal characteristics description based on the occupational profile are all included in Exhibit 2 on Biologist, one of the occupations in the Career Group of

Exhibit 2 about here

Medical and Biological Science occupations. This set of what will be Chapter 4 was picked as an interesting illustration of an occupation entered by either men or women and consisting of several jobs within the occupation. We do not have separate profiles for jobs in the Data Book but we do have a separate statement of typical work activities by job. The occupational profile reports the one standard deviation range for the tests of an occupational group as well as the location of the occupation's mean value. The

counselor is thereby encouraged to realize that an individual's pattern practically never fully conforms to the profile of an occupation but must be weighed with the student both in terms of how willing the student is to make up indicated deficiencies and in terms of the chance variability associated with the pattern as indicated by the one standard deviation range around the mean. For each score, this range includes 68% of the scores of students who later entered the occupation. Sixteen percent of the students who entered that occupation after their expected year of graduation scored higher than the +1 standard deviation limit and another 16% scored lower than the -1 standard deviation limit. We did not report similar boundaries for career groups because we do not at this time have the data by occupation appropriately aggregated to permit meaningful estimates of what the fiducial ranges of the scores in each profile are.

Giving the Facts of the Data Book Proactive Force

No Data Book can determine a student's career. Only the student can do that for himself. It remains for the counselor to help his students give the facts of the Data Book proactive force in the student's life. To do so the counselor must focus upon the informing process and let the facts of the Data Book illuminate the decisions of the student as the counselor helps the informing process to run its course and be given the force by the student of directing his career activity. The Data Book is intended to illuminate the differentiation of both a Career Group or two and several possible occupations within the Groups fixed upon as potential career areas. These differentiations in the informing process do not take place overnight of course. Furthermore, they ordinarily need a good deal of attention, frequently attention of a teaching as well as a counseling kind. I leave it for my colleagues to expand on the timing, pedagogy, and counseling which facilitate

comprehension of the informing process in association with the facts of what will very soon be Project TALENT's The Career Data Book: Results from Project TALENT's Five-Year Follow-Up Study.

REFERENCES

Flanagan, J. C., Shaycoft, Marion F., Richards, J. M., Jr., & Claudy, J. G. Five years after high school. (Final Report to the U. S. Office of Education.) Palo Alto: Project TALENT Office, American Institutes for Research and University of Pittsburgh, 1971.

TABLE 1. 64 Cognitive and 45 Non-Cognitive Variables

I. 64 Cognitive Variables

Information Test - Part I

R-101 Screening
R-102 Vocabulary
R-103 Literature
R-104 Music
R-105 Social Studies
R-106 Mathematics
R-107 Physical Science
R-108 Biological Science
R-109 Scientific Attitude
R-110 Aeronautics and Space
R-111 Electricity and Electronics
R-112 Mechanics
  a. Tools and Construction
  b. Motors and Mechanisms
R-113 Farming
R-114 Home Economics
  a. Cooking
  b. Other
R-115 Sports

Information Test - Part II

R-131 Art
R-132 Law
R-133 Health
R-134 Engineering
R-135 Architecture
R-136 Journalism
R-137 Foreign travel
R-138 Military
R-139 Accounting, Business, Sales
R-140 Practical Knowledge
R-141 Clerical
R-142 Bible
R-143 Colors
R-144 Etiquette
R-145 Hunting
R-146 Fishing
R-147 Outdoor Activities
R-148 Photography
R-149 Games (Sedentary)
R-150 Theatre and Ballet
  a. Theatre
  b. Ballet
R-151 Foods
R-152 Miscellaneous
R-162 Vocabulary (Overlapping)

R-211 Memory for Sentences
R-212 Memory for Words
R-220 Disguised Words

English

R-231 Spelling
R-232 Capitalization
R-233 Punctuation
  a. Punctuation Marks
  b. Sentence Structure
R-234 English usage
R-235 Effective Expression

R-240 Word Functions in Sentences
R-250 Reading Comprehension
R-260 Creativity
R-270 Mechanical Reasoning
R-281 Visualization in two dimensions
R-282 Visualization in three dimensions
R-290 Abstract Reasoning

TABLE 1 (continued)

I. 64 Cognitive Variables (continued)

Mathematics

R-311 Part I. Arithmetic Reasoning
R-312 Part II. Introductory High School Mathematics
R-333 Part III. Advanced High School Mathematics

F-410 Arithmetic Computation
F-420 Table Reading
F-430 Clerical Checking
F-440 Object Inspection

A-410 Arithmetic Computation
A-410 Table Reading
A-430 Clerical Checking
A-440 Object Inspection

II. 45 Noncognitive variables

A-500 Preferences Test

Interest Inventory

P-701 Physical Science, Engineering, Math
P-702 Biological Science and Medicine
P-703 Public Service
P-704 Literary-Linguistic
P-705 Social Service
P-706 Artistics
P-707 Musical
P-708 Sports
P-709 Hunting and Fishing
P-710 Business Management
P-711 Sales
P-712 Computation
P-713 Office Work
P-714 Mechanical-Technical
P-715 Skilled Trades
P-716 Farming
P-717 Labor

Student Activities Inventory

R-610 Sociability
R-602 Social Sensitivity
R-603 Impulsiveness
R-604 Vigor
R-605 Calmness
R-606 Tidiness
R-607 Culture
R-608 Leadership
R-609 Self-confidence
R-610 Mature Personality

SIB Composites

D-802 High School Curriculum
F-803 High School Courses Taken
F-820 High School Grades
F-822 Guidance Recd in HS
F-823 Guidance Recd Elsewhere
P-827 Study Habits and Attitudes
P-828 Self-perception of Writing Skills
P-829 Self-perception of Reading Skills
F-830 Amt. of Extracurr. Reading
P-831 Variety of Extracurr. Group Activities (except sports)
F-832 Degree of participation in Extracurr. Group Activities (except sports)
P-833 Variety of Hobbies (except sports)
F-834 Degree of Activity in Hobbies (except sports)
F-835 Participation in Sports
F-836 Leadership roles
F-837 Social Life
F-838 Work Activities (chores and jobs)

Table 2

LIST OF THE OCCUPATIONS INCLUDED IN EACH OF THE 12 CAREER GROUPS IN THE CAREER DATA BOOK

1. Engineering, Physical Science, Mathematics, and Architecture

- Architect
- Chemist
- Engineer (n.e.c.) *
  - Aerospace
  - Chemical
  - Civil, Hydraulic
  - Electrical, Electronic
  - Mechanical, Automotive
- Geologist
- Mathematician, Statistician
  - College Mathematics Teacher
  - High School Mathematics Teacher
- Physical Scientist (n.e.c.)
- Physicist
- Science Teachers
  - College Science Teacher
  - High School Science Teacher

2. Medical and Biological Sciences

- Agricultural Specialist
- Biologist, Zoologist
- Dentist
- Nurse
- Pharmacist
- Physician
- Veterinarian
- Wildlife/Conservation Specialist

3. Business Administration

- Accountant, Auditor, Comptroller
- Advertising Worker
- Business Administration and Management (n.e.c.)
- Certified Public Accountant
- Efficiency Expert, Industrial Engineer, Production Manager (n.e.c.)
- Finance Worker
- Industry, Business, Commerce (n.e.c.)
- Investment Consultant
- Manufacturing Management
- Marketing and Wholesale/Retail Trade Manager
- Military Officer
- Personnel Administration
- Pilot
- Purchasing Agent
- Retail Buyer
- Stockbroker
- Teacher--Commercial Education

4. General Teaching and Social Services

- Clergyman
- Guidance
  - Counseling
  - Vocational/Educational
- Social Worker
- Teacher (n.e.c.)
  - Elementary
  - High School
  - Preschool
  - Specialists
    - Handicapped
    - Home Economics
    - Physical Education

5. Humanities, Law, Social and Behavioral Sciences

- Diplomat
- Economist
- Journalist, Reporter
- Lawyer
- Librarian
- Psychologist
- Social Scientist
- Teacher
  - College (n.e.c.)
  - English
    - College
    - High School
  - Foreign Language
    - College
    - High School
  - Social Sciences and Studies
    - College
    - High School
- Writer

6. Fine Arts, Performing Arts

- Artist/Painter, Sculptor, etc.
- Commercial Artist/Advertising, Fashion, Illustrator, etc.
- Musician/Instrumental
- Teacher
  - Art
  - Music
- Theater Worker

7. Technical Jobs

- Computer
  - EAM Operator, Supervisor
  - Programmer
  - Repair Serviceman
- Dental Hygienist
- Draftsman
- Electronics
  - Technician
  - Worker (n.e.c.)
- Laboratory Technician/Biological Science, Dental, Medical
- Laboratory Technician/Physical Science, Engineering, etc.
- Photographer
- Physical Therapist (Physiotherapist)
- Specialized Therapist (Miscellaneous)
- Surveyer
- Technologist/Medical, Dental

8. Proprietors, Sales

- Clerk/Sales
- Farming/Ranching--Owner
- Manager/Sales
- Proprietor, Contractor (in business for self)
- Salesman
  - Auto
  - Insurance
  - Other (n.e.c.)
  - Real Estate
- Supervisor/Business

9. Mechanics, Industrial Trades

- Clothing, Fashion Trades
- Electrician (n.e.c.)
- Machinist
- Mechanic
  - Airplane
  - Auto
  - Other (n.e.c.)
- Metal Worker
- Printing Trades
- Repairman
  - Appliance
  - Industrial Machine
  - Office Machine
  - Telephone (including installers)

10. Construction Trades

- Bricklayer, Mason, Painter, Roofer, Plasterer, etc.
- Building Construction/Miscellaneous
- Carpenter
- Foreman (n.e.c.)
- Heavy Equipment Operator
- Mining, Quarrying, etc.
- Plumber, Pipefitter

11. Secretarial-Clerical, Office Workers

- Account Recording Worker/Miscellaneous
- Bookkeeper
- Clerical Worker/Miscellaneous
- Clerk
  - Bank
  - Miscellaneous
- Operator
  - Keypunch
  - Radio, Telegraph, and Teletype
  - Telephone (PBX)
- Receptionist, Hotel Clerk, etc.
- Secretary (n.e.c.)
  - Legal
  - Medical
- Stenographer, etc.
- Typist

12. General Labor, Community and Public Service

- Butcher, Meat Cutter
- Driver--Auto, Bus, Truck
- Farming/Ranching--Other (n.e.c.)
- Fireman
- Hairdresser
- Laborer/General
- Military/Enlisted
- Nurse/Practical
- Policeman

*n.e.c. means "not elsewhere classified"

Exhibit 1

THE CAREER DATA BOOK: RESULTS FROM TALENT'S FIVE-YEAR FOLLOW-UP STUDY

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Figure 1

CAREER GROUP II

Medical and Biological Sciences

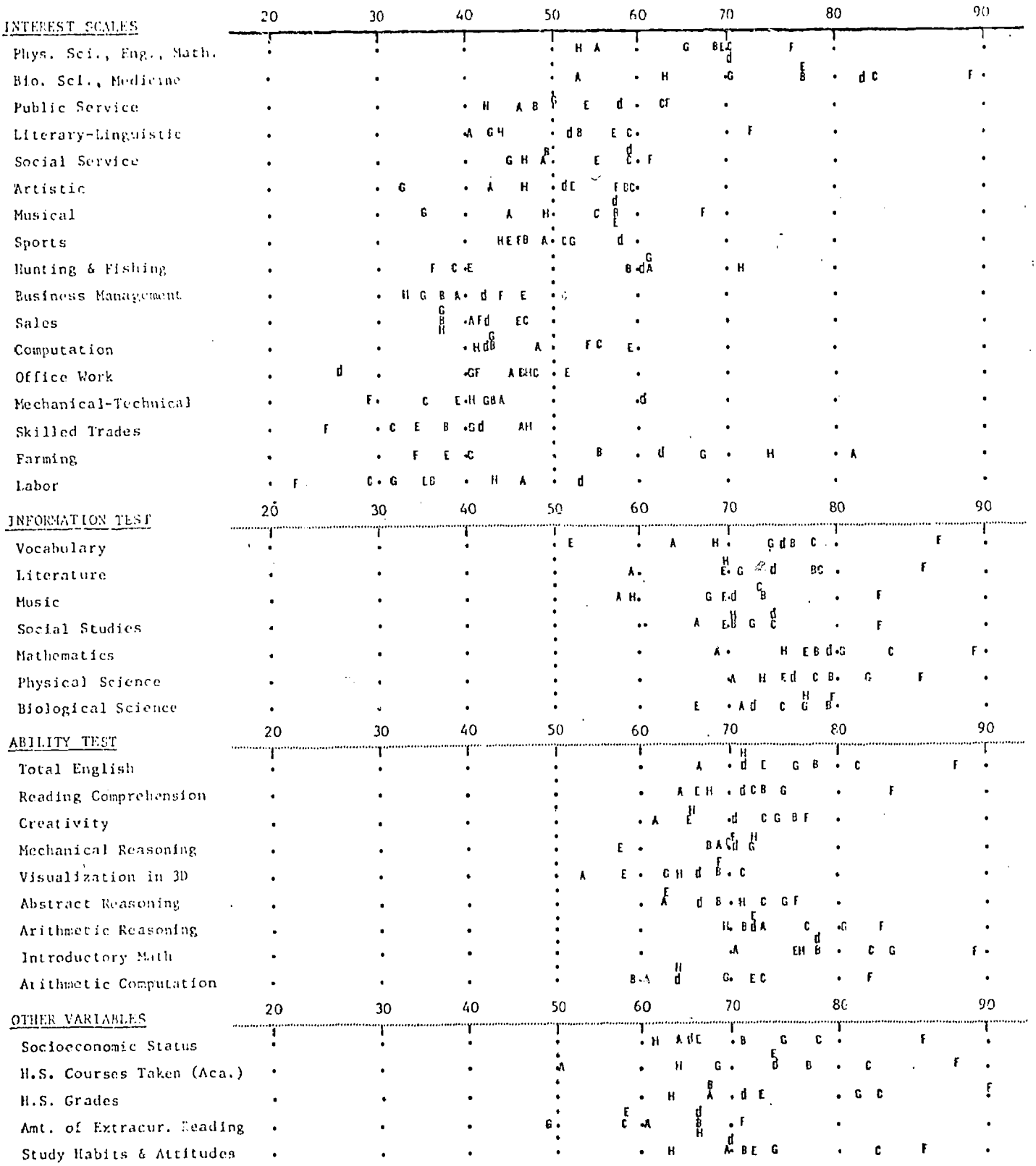


Exhibit 2

BIOLOGIST, ZOOLOGIST

Importance: Biologists, who are included in the larger group known as life scientists, study living organisms and the processes of life--its structure, functioning, and behavior. Many of biology's findings contribute to human well-being, directly or indirectly, through their applications to other fields.

Training: To work in the life sciences student should plan to get a master's and if possible a Ph.D. degree. However, can get a beginning job with a bachelor's degree and a major in one of the life sciences. These jobs usually involve testing, enforcement of regulations, technological, or routine work. With bachelor's degree can become a high-school teacher. Master's degree sufficient for applied research and some college teaching jobs. For high-level teaching, for independent research, and often for administration of research programs, doctorate is necessary.

Life scientist needs training not only in biology but in other fields such as chemistry, physics, statistics, mathematics, and use of the computer. Mastery of laboratory and fieldwork techniques important.

Typical Work Activities: Biology broken up into many specialties. Major divisions are those that deal with plants--botany; with animals--zoology; and with microorganisms--microbiology. Each of these includes many smaller subdivisions.

Botanist identifies and classifies plants, studies their relationship with environment, their structure, life processes, and diseases. Agronomist is botanist particularly interested in food crops. Looks for and tries to develop hardier and more productive varieties, and seeks means to control pests and weeds. May study medicinal herbs and try to find new medical substances in them.

Zoologist studies animal life. (See p. ___.)

Microbiologist studies microscopic organisms such as bacteria, viruses, molds, and serums.

Geneticist studies hereditary characteristics. May be engaged in either applied or theoretical genetics. Primary work of applied geneticist is with plants and animals, to develop strains that will be more useful to man.

Biological oceanographer often called marine biologist. Studies sea's organisms, both plant and animal, and the way in which their changing environment affects them.

Anatomist studies the shape and structure of organisms. Biochemist studies their chemical processes. Biophysicist studies their ways of responding to physical forces. Ecologist studies organisms' relation to each other and to the environment. Entomologist studies insects and the ways of controlling those that are harmful.

Pathologist studies disease in plants, animals, and humans. Pharmacologist studies the effect of drugs and other substances on living things. Physiologist studies cells, tissues, and organs and the ways in which their working is affected by environment.

Many life scientists (a category which includes biologists) work as teachers and researchers in schools and colleges; others for medical schools, federal and state governments, and private industry.

Outcomes: New biological facts and the innovative or successful application of known biological facts.

Supervision; Social Relations: Dependent on nature of job. Usually considerable supervision at beginning of career; much less if successful.

Salary; Other Benefits: In 1970, life scientists with bachelor's degree going to work for federal government started at $6,548 or $8,098 a year. With master's degree started at $8,098 or $9,881, with Ph.D. at $11,905 or $14,122. Median salary for biological scientists $15,000. Pay usually higher in private industry.

Role of Sexes: In 1970 about 10% of life scientists women.

Importance: Zoology one of the life sciences. Findings relevant to agriculture and often to human medicine.

Training: Similar to that for biologists in general (see p. ___).

Typical Work Activities: Studies animals, their structure, classification, behavior, and life processes. May work in laboratory or in field. Many specialize in one particular kind of animal, as mammalogists in the study of mammals. Paleozoologists study animals of ancient times. In drug industry, zoologist studies effect of drugs on animals.

Outcomes: New facts, new or successful applications of known facts, concerning animal life.

Supervision, Social Relations: See p. ___.

Salary; Other Benefits: See p. ___.

Role of Sexes: See p. ___.

PERSONAL CHARACTERISTICS

Project TALENT people who chose this occupation had the following characteristics in high school:

Interests: Highest score (77th percentile) in biological science and medicine; high (68th percentile) in physical science; lowest (37th percentile) in business management, sales, skilled trades, and labor.

Information

General: Average around 78th percentile on information scores; highest (79th percentile) in physical and biological sciences; lowest (70th percentile) in social studies.

Specific: High (76th percentile) in health; 74th percentile in aerospace.

Abilities

General: Around the 71st percentile on ability scores; highest (78th percentile) in English, and introductory math; lowest (59th percentile) in arithmetic computation.

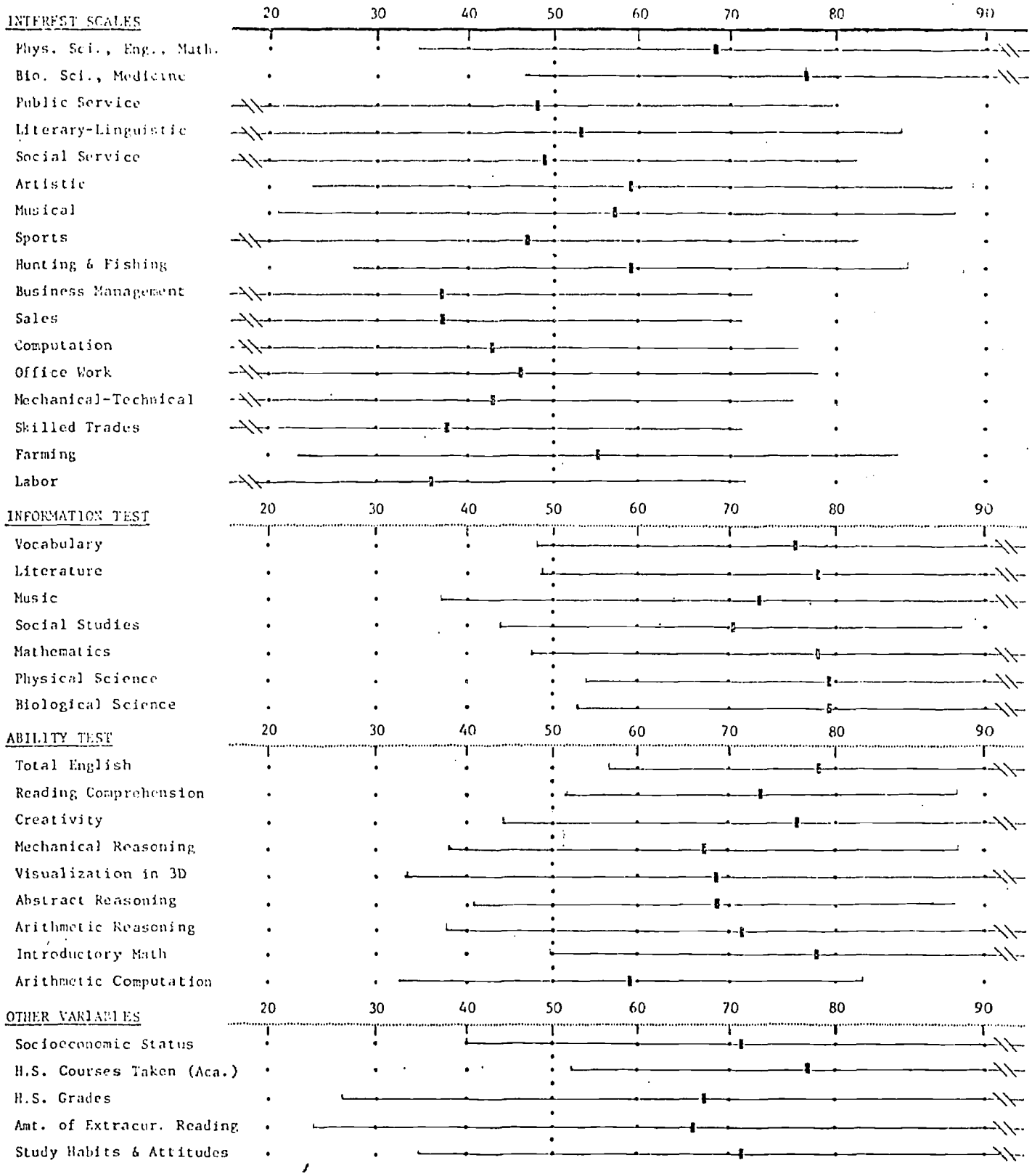
Specific: 74th percentile in memory for words, and advanced math; 58th percentile in table reading.

Others

General: High (77th percentile) in academic orientation of high school courses; low (66th percentile) in extracurricular reading.

Specific: High (67th percentile) in self-perception of reading skills.

BIOLOGIST, ZOOLOGIST



An Application of the TALENT Data Bank in Career Decision-Making[1]

Judith M. Melnotte
American Institutes for Research

Introduction

In the United States, approximately 60% of all persons over the age of sixteen participate in the labor force. Thus, almost two out of every three persons over the age of sixteen make both initial and recurring decisions about employment and careers at some points in their lives.

Obviously, millions have made such decisions during decades past. But those decisions were frequently based on dreams, fantasy, rumor, circumstance, tradition, and other relatively unstudied foundations. This approach has been successful for many people. Some go through their productive adult years with few complaints: their jobs are considered reasonable; they successfully raise families; they enjoy their leisure. But for many others, there is a lack of fulfillment, a sense of ennui, and even, alienation. For these people, work does not contribute to the quality of their lives, and for some, work may even be a deterrent to a fulfilled life.

New Directions

There are many forces currently being exercised to help people view the educational process not just as training to cope with the future, but as background for an appreciation and understanding of life and how to live it. This humanistic re-focusing of education does not negate the importance of the

1) Presented at the American Personnel and Guidance Association Convention, February 10, 1973, San Diego, California

"three - R's." It is, rather, an attempt to harmonize the worlds of education, work, and the individual, with all his abilities, aspirations, and interests. This re-focusing effort may be labeled "career education."

Implicit in such an approach are a number of key principles. Among these are: a) individuals need to know more about themselves -- their strengths, weaknesses, satisfactions, dissatisfactions, their desired work and living styles; b) individuals need to know more about the world of work - what it means to work, what the potential opportunities are, what it takes to reach a career goal; c) individuals need to learn something about decision-making, to be able to make and unmake decisions, to act on them, and to understand their implications; and d) educational institutions need to extend their resources and manipulate their expertise to meet individual goals and needs.

In essence, such an approach to education is education with a personalized purpose, enhancing the individual's potential for contribution and self-fulfillment. All of this makes tremendous demands on our traditional educational system and may even call for considerable administrative and philosophical change.

However, a number of steps toward this goal have been and are being made. One of these steps involves our current ability to provide students with a personalized data base which can be related to others who have been in the work or college world at least five years after high school. The implications are three: 1) students can be exposed to a greater perspective of themselves; 2) students may be better able to define their long range goals; and, 3) if the educational system is willing, students may have access to more personally relevant curricula, which are related to those goals, during their basic educational years. With the data from Project TALENT as one of the focal points, a personalized guidance system, which incorporated these elements, was developed and applied during recent years. The following paragraphs describe that development and application.

An Application of the Project TALENT Data
To Goal Oriented Curriculum

Project TALENT was a massive data collection effort, initiated in 1960, with follow-up exploration of high school students who graduated in either 1960, 1961, 1962, or 1963. One of the outcomes of these follow-up data was the ability to describe what became of students five years out of high school in terms of their educational/vocational goal selections and aspirations. This enabled the staff at AIR to examine students' test results when they were still in high school and associate their unique high school measurement profiles with future occupational membership. It was felt that the ability to generate these associations had considerable potential impact for other students in later years as to their individual decision-making, career guidance, and curriculum directions.

AIR was deeply involved in the development of Project PLAN at the same time the data base was being developed. PLAN provided the vehicle to make practical application of this new data base.

Project PLAN is a computer-supported, individualized system of education developed under the direction of John C. Flanagan by the American Institutes for Research.[1] Inherent in PLAN is an individualization of the educational process: students proceed through curricula at their own rates with individualized teacher-learning units geared to their abilities, and in part, to their media preferences. In addition, a student's curricular content was individualized through a personalized list which suggested learning units for the entire school year.

This personalized list of curriculum units took into consideration such elements as state and local requirements, special student interests, citizenship enrichment, and the like. But, perhaps most important, the suggested

1) Project PLAN is proprietary to and commercially marketed by Westinghouse Learning Corporation

curriculum included units which a) reflected the student's educational/vocational goals as suggested by his cognitive characteristics and b) his educational/vocational goals as expressed by the student and his parents. This personalized matching of the student with available curriculum units, which would reflect his educational/vocational goals and other personal characteristics, involved a tremendous coding task in order to generate the suggested curriculum. In all, over a quarter of a million codes were defined - all designed to make a student's educational experience more relevant to who he was and where he wanted to go in life.

It is, at this point, necessary to define what is meant by "goals." It is possible to have as many or even more specific goals as there are students. And if career guidance and its reflected curricula are to be truly individualized, they ought to represent each and every goal. However, the state of the art is not yet at the point where there are as many curricula as there are specific individual goals. However, it is reasonable, and more than possible, to cluster occupational goals into career families. In many ways, this is even more desirable, for it discourages a student from prematurely narrowing his options during goal planning.

The TALENT data were used to empirically define a manageable and rational set of these career goal families or clusters. While over one hundred measures were initially administered in cognitive, affective, and demographic areas to students who ultimately joined hundreds of different occupations, seventeen of the cognitive measures were found to be effective in distinguishing twelve long range occupational or career goal clusters. The seventeen variables are listed in Figure 1 and the twelve career clusters are listed in Figure 2.

Figure 1

Project TALENT Tests Used to Empirically
Define Long Range Occupational Goal Clusters

Vocabulary
Reading Comprehension
Word Functions in Sentences
Disguised Words
Memory for Words
English Usage
Effective Expression
Punctuation and Sentence Structure
Spelling
Capitalization
Authentic Reasoning
Introductory Mathematics
Abstract Reasoning
Mechanical Reasoning
Creativity
Visualization in Two Dimensions
Vixualization in Three Dimensions

Figure 2

Long Range Occupational Goal Clusters
Empirically Defined by Project TALENT Tests

Engineering, Physical Science Mathematics, Architecture
Medical and Biological Sciences
Technical
Business Administration
Business - Sales
Business - Clerical
Construction Trades
Mechanics, Industrial Trades
General, Community Service, Public Service
General Teaching and Social Science
Law, Humanities, Social and Behavioral Sciences
Fine and Performing Arts

The coded curricular units were assigned on the bases of a student's match between his performance history in school and his cognitively suggested and expressed long range goal categories.

Obviously, this kind of approach to education has tremendous import for the individual student and his counselors. Through the use of these data, counselors have an especially useful tool to help students in three areas of guidance - goal exploration, goal facilitation, and goal confirmation.

Use of the TALENT Data Bank in Three Areas of Guidance

Goal Exploration. Many, if not most, students express the interest or need to join the work world. However, few of these students are able to express a sense of direction or commitment to particular roles they want to play in that world. Some students have absolutely no idea whatsoever: they will just get some kind of a job when the time comes that they are forced to do so. The potential danger is that a career, at least for the immediate future, becomes based on chance, on those accidental incidents at the moment a decision becomes necessary. However, a little exploration about the student's characteristics and how they relate to existing workers could go a long way toward minimizing the potential dissatisfactions of "career by accident."

For the directionless student who seeks help, the TALENT Data Bank can provide at least some initial suggestions through its array of profiles on over one hundred occupations, clustered, according to their similarities, into twelve career groups. When the student is assessed on the same or some portion of the battery which went into the development of the profiles, he gains a series of personalized reference points to specific roles in the world of work. As a simple example, take the student who is close to average on such measures as vocabulary, mechanical reasoning, creativity, and memory for words, but excels, relative to the rest of his profile, in areas such as arithmetic reasoning, and especially introductory mathematics. According to the TALENT profiles, I have just described the high school TALENT test history of the average current CPA.

These data certainly do not mean that the student seeking direction should be advised to become an accountant or a CPA. They merely mean that the area of CPA or accounting is something to explore. They at least might get the student looking and thinking, and in this sense, would serve as a heuristic for future explorations. At the very least, these data give the student a beginning point, and that is often the most difficult in the career goal-seeking process.

Goal Facilitation. Not only are the TALENT Data useful for exploration, they are also useful for diagnosis and remediation. Let us take, as an example, the student who is dedicated and committed to the career of physician. Through various explorations, she knows that she might be in college, in one form or another, for ten years or more. She knows that there are tremendous commitments of time and money, and she is willing to meet those commitments. In addition, the student does hospital volunteer work, and enjoys it. She has superior grades in biology, English, and social studies, and slightly better than average grades in mathematics. Her TALENT profile reflects these accomplishments. She excels on tests such as Vocabulary, Reading Comprehension, and Abstract Reasoning. Offhand, we might say this gal should have no problem getting into college, and if she applies herself and still has the goal of physician four to six years hence, should be able to get into medical school. But, there is a surprising hitch.

We know from the TALENT data profiles that one of the most outstanding high school academic attributes of current physicians was their skill with numbers. Devil's advocates might say that most practicing physicians don't really need mathematics in their work. Perhaps so, but this society still has its entrance keys and reward systems. For medical school, they include skills in chemistry, physics, and for some, statistics and research design. The potential medical student needs to be able to compete in these areas which are heavily mathematical. For the particular committed and motivated student in our example, that one piece of data from the TALENT bank becomes very important. In no way, does it mean that this student should be discouraged from her goal.

The TALENT data are not and were never intended to discourage, encourage, or in any way, pigeonhole a student. What it does mean for this gal is that it would behoove her to turn those somewhat average mathematics skills into superior mathematics skills.

Given that we can make these kinds of remedial diagnoses and suggestions, the educational system needs to find the time and instructional resources to help students attain their goals.

Goal Confirmation. To this point we have discussed how the TALENT data can help the student seeking career direction and the student who has career direction but also has some potential stumbling blocks in reaching a goal. There is a third type of situation - the situation where a student has a tentative goal, but feels terribly insecure about whether or not he has the so-called entrance keys. The student who has a personal profile which is not disparate with his goal provides a pleasant situation for the counselor. The student can be reassured and encouraged - that at least in one area, his goal is confirmed.

Closing Remarks

The data bank can be a tremendous resource for these kinds of problems: the TALENT Data Handbook was designed with this philosophy in mind. This writer has offered only a few examples. You, as counselors, could no doubt generate dozens more. The Handbook can be a valuable counseling tool. One of its main contributions, as you have no doubt gathered by now, is that it provides the student with a realistic reference point vis-a-vis himself and others in the world of study and work. Such data can help identify areas for improvement or confirm an existing goal. It certainly extends our intuition.

Career education, as you all know, is currently receiving a great deal of national attention. Under Dr. Dunn's guidance at AIR, two projects are underway to contribute to this national movement. One deals with the development of

a K to 9 curriculum in career education focusing on awareness, orientation, and exploration. The other project involves a contribution to the development of the employer based school model in the areas of student decision-making and goal formulation. In both projects, we will be applying the knowledge base which has grown out of Project TALENT.

Hopefully, with this more empirically-based foundation for guidance, we can avoid, to some degree, the disillusionments, the disappointments and the misplacements so prevalent in our work world today. Students can be assisted in making decisions better-based in reality and rely less on the old myths of fantasy, rumor, and tradition.

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CAREER EDUCATION IN THE ELEMENTARY AND JUNIOR HIGH SCHOOL

James A. Dunn
American Institutes for Research

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Career Education in the Elementary and Junior High School[1]

James A. Dunn

American Institutes for Research

Career education has been designated as one of the major priorities of the U.S. Office of Education for the 1970's. Approximately 2 years ago, in Houston, Texas, newly appointed Commissioner of Education, Sidney Marland, suggested that public education was in need of widespread revision if it were to address the criticisms and meet the needs of a major segment of American youth

Marland noted that two out of every three college students drop out before graduation and that a similar proportion drop out of high school before obtaining their high school diplomas. In particular Marland suggested that the content, methods and practices of traditional education be seriously re-considered, especially those which result in the "tracking" of students into college bound, vocational, and general education programs.

In spite of its strong promotion of career education, however, the U.S. Office of Education has refrained from prescribing precisely what constitutes career education. It has been Marland's position that career education should be defined operationally in local communities by teachers, parents, and school boards, rather than by units of the Office of Education and the federal government. As a consequence, there is a plurality of definitions of career education, ranging from the very specific to the very general.

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1) Presented at the 1973 American Personnel and Guidance Association Convention, February 10, 1973, San Diego, California

Career Education: A Tentative Definition

In its broadest sense, career education may be considered as the development of the skills and knowledge through which individual students may fulfill their own unique needs with regard to occupational choice, social responsibility, leisure-time activity, and personal development.

Career education is comprised of those gradual, cumulative, educational activities and experiences necessary for a student to achieve increasing knowledge and personal competence, so that he may achieve satisfying and self-sustaining roles in society.

At the minimum, career education involves the development of an objective opinion regarding one's self, knowledge of the various options open to one, and skills in goal formulation, personal planning, and decision-making. In its full extent it also involves knowledge of how to augment one's options and how to successfully pursue one's goals.

Career education, then, can be conceived as the aggregate involvements through which one acquires and develops the knowledge, skills, and attitudes required for the meaningful pursuit of vocational, avocational, leisure, social, and personal commitments.

In brief, career education exists for the benefit of the individual, recognizes the inherent dignity of the individual, attempts to increase the relevance of the curriculum to the specific career needs of individuals, and attempts to demonstrate to the individual the relevance of the school curriculum to his goals in adult life.

The Origins of Career Education

In retrospect the roots of career education can be clearly seen in three historical movements. The first is the vocational education movement beginning with the Morrill Act of 1862, moving through the Smith-Hughes Act of 1917 and more recently manifesting itself in the Vocational Education Act of 1963 and its 1968 amendments.

The second is the vocational guidance movement, beginning with the work of Parsons in 1907 and 1908, the formation of the National Vocational Guidance Association in 1913, the work of Ginzberg, Super and others after World War II, and more recently in work such as that of Gysbers.

The third is the curriculum reform movement as reflected in the efforts of Dewey at the turn of the century, the progressive education movement of the '20's' and '30's' including such keynote experiments as that of Winnetka, Illinois and culminating in the myriad curriculum/instructional methods activities of the past decade, which ranged from programmed instruction to behavioral objectives, new curriculum projects to flexible scheduling, and performance based credit to alternative school formats.

The Implementation of Career Education

How then is career education to be achieved? The USOE and NIE have committed large amounts of money and manpower to the introduction of career education into the public schools. Scholars and practitioners, school systems and think tanks, regional laboratories and private enterprise have all been involved in the design and analysis of alternative career education configurations.

The two configurations that have received maximum attention are the public school based programs and the alternative school, employer based, programs.

In general, however, regardless of paradigmatic category, most operating programs typically involve the considerations of psychological, sociological, and economic factors as well as more traditional educational matters.

The psychological emphasis suggests that each child should develop an understanding of himself and his own range of potentials and aspirations, as well as skills in making education/career/life decisions; that he needs to be aware of himself in the frame of reference of a world of work. Sociologically, there must be a focus on helping the child understand the socioeconomic structures of our society, and on helping him find a satisfying place for himself within that framework. Economically, a student must be helped to learn not only the realities of paychecks and family finances, but also the relevance of business, finance, and taxation to his own world.

Suffice it to say that career education must portray the real world. It must seek to bridge schools and jobs so that the maturing student can perceive, and sample, the widest possible range of career opportunities. And it should seek to give the student enough information about himself, and about careers, so that he will be able to make realistic decisions.

The Potential Role for Guidance and Counseling

What then are the implications for Guidance and Counseling? Guidance, as an academic discipline has a great deal to offer with regard to the design of new educational programs. You already have heard of one area of guidance input, the systematic clustering of occupations into meaningful clusters based on individual entrant characteristics. To be sure, there are many ways to cluster occupational information. One is to cluster occupations based on their related industries. This is the traditional orientation used by the DOT, the OOH, and national economic policy planners. It might be called an industrial economics model. A second widely used clustering method, usually of primary interest to employers, personnel departments and training departments is based on patterns of common requisite skills. This permits economy in employee training and maximum flexibility in personnel assignment. The third option, and the one of maximum interest from an individual-personal point of view is the entrant abilities model where occupations are clustered on the basis of the patterns of skills and abilities reflected by individuals entering, or attempting to enter various occupations. It was the guidance implications of this method that Ms. Melnotte so ably reported on.

Other areas where guidance as a discipline can make contributions are in personal assessment and test interpretation, personal growth and development theory, values clarification, goal formulation and decision-making, personal planning, career growth and development theory, and the like.

Guidance also has something to offer from a professional service point of view as well. Counselors can, and should, be active in curriculum design, materials development, in-service teacher training, behavior management and modification consultation, testing, and personal-social-academic and vocational counseling (both individual and group). In addition, such activities as the planning, supervision and coordination of the use of community resource people and agencies, work orientation, apprenticeships, and familiarization programs also deserve counselors' attentions.

The National Advisory Council on Vocational Education in their recent (June 1972) report to the Secretary of Health, Education and Welfare, emphasized most strongly the value of guidance in helping young children develop

sound decision-making skills, and called for major support in this area. They noted that while the counselor-pupil ratio was cut in half between 1958 and 1968, there has been no appreciable drop in the ratio since then. They also note, however, that the secondary school counselor-pupil ratio is still over 10 to 15 times greater than the elementary school counselor-pupil ratio.

Clearly there is a need, and opportunity, for counselors in career education, and especially in the elementary and intermediate grades.

In the four minutes that remain I would like to summarize briefly for you one effort at the design of a career education curriculum and the areas in which we feel guidance expertise has been especially useful to us.

The American Institutes for Research Career Education Curriculum Development Project

In the summer of 1972, in order to provide schools with a broader array of curricular options and alternatives, the U.S. Office of Education Curriculum Center for Occupational and Adult Education, Bureau of Adult, Vocational, and Technical Education, contracted with the American Institutes for Research for the development of a comprehensive career education curriculum for grades K through 9.

As a result the American Institutes for Research, six public school systems, and two county school systems, working in concert, entered into a two-year curriculum development effort.

The AIR Career Education Curriculum Project is concerned with restructuring the K through 9 curriculum in order to increase students':

- Knowledge of occupations, careers and avocational options;
- Knowledge of themselves, their interests, abilities, and values and the relationship of those interests, abilities, and values to various career goals;
- Judgment and decision-making skills with regard to career goal formulation and life-style aspirations.

Teachers, counselors, vocational educators, representatives from business and industry, curriculum and learning specialists, school administrators and university personnel are cooperating in the development of the project.

In brief, the AIR Career Education curriculum involves four main curriculum strands subdivided into 10 sections, or areas, with approximately 35 topics under each area. These topics are then partitioned into a series of approximately 300 curriculum concepts arrayed on scope and sequence charts across grade levels K-9. Each of these concepts then, in turn, serves as a focal point for the generation of instructional objectives. Approximately 2,000 behavioral objectives define the curriculum.

Approximately half of the objectives pertain to occupational information per se. This information is organized around the occupational clusters as defined by the Talent data bank. The balance of the objectives deals with knowledge of self, social and civic responsibility, options exploration, decision-making, career exploration, and the like. It was primarily in the specification of objectives for the majority of these latter areas that guidance expertise was most useful.

We are presently preparing to move into Phase II of our project where we develop teacher curriculum guides, instructional activities, teacher training materials and the like. It is at this stage that we hope we can incorporate some of the wisdom of the practical-practitioner side of guidance as well.

We have great hopes that we can and we are looking forward to trying.

EVER HEARD OF AN EFFECTIVE CAREER PLANNING MODEL THAT LASTS?

G. Brian Jones

Under contract with the Office of Planning, Budgeting and Evaluation in the United States Office of Education, we presently are assessing career guidance, counseling, and placement activities conducted for noncollege-bound youth in secondary schools. The project has three aims:

(1) to conduct a literature review, and prepare a report on the state of selected critical aspects of guidance, counseling, and placement for such youth;

(2) to prepare case studies of 13 programs from across the nation which illustrate one or more of these critical counseling, guidance, and placement aspects; and

(3) to develop a comprehensive planning model for career guidance, counseling, and placement services for noncollege-bound high school students. This model will provide a framework for integrating selected elements of the 13 case studies.

We have been toying with the idea that our current project title should be changed to "An Impossible Dream" or "The Great Career Guidance Rip-Off." Right now we are in the final stages of our search for career planning, development, placement and follow-up models which have been operationalized in the form of

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on-going programs (functioning at least since September 1971) servicing a student population of which at least 50% are noncollege-bound. Even though our reports are not scheduled for completion for a few months, and their dissemination will be through our USOE monitor, we would like to share with you a few of our preliminary concerns related to these "Rip-off" allegations.

Some Impediments to Long-Term Empirically-Validated Career Guidance

1. The disturbing heavy reliance on expert opinion as the basis for resolving career guidance, counseling, and placement issues. The lack of empirical data to support or modify existing and recommended practices is indicated both by our literature review and our program search. The armchair approach of supposed experts appears to be the prevailing strategy for resolving issues related to: (a) counselor and paraprofessional training and certification; (b) the functions of guidance and counseling personnel and their relationship to noncollege-bound students (including sub-groups of this population such as women, ethnic minorities, and the poor); (c) the value of school placement services; and (d) the relative cost-benefits of using computers and other media, methods, and materials to provide career guidance information.

2. The extinction of potentially effective career guidance programs because of the withdrawal of that well-known secondary reinforcer: money (especially in the form of federal and state fiscal support). It is discouraging to come upon seemingly solid models and programs which never received rigorous implementation and evaluation before disappearing. The contributing factors probably are numerous; "lack of outside support" cannot take all the blame. The question of a program's ownership and ego involvement both by the personnel who are supposed to maintain it after the

developmental phase is ended and the clients who are supposed to receive its services are two factors which should be closely studied.

3. The dearth of attempts to integrate guidance, counseling, and placement programs into an overall system of well-integrated components. Most programs tend to present fragmented, piecemeal services to youth. For example, career planning and development assistance often seems to have only a faint (if any) relationship to placement and follow-up services.

4. The paucity of career guidance, counseling, and placement programs which focus on a broad definition of "career." Most programs focus on a narrow, job-oriented definition of "career". It is discouraging to see how few attempts have been made to operate programs operationalizing what Gysbers (1972) calls "life career development" or what we (Jones et al, 1972) refer to as the six areas of career planning: occupations, education, personal and social behavior, learning-how-to-learn, social responsibility development (i.e., citizenship), and leisure time activities.

5. The predominance of models and programs which either confuse "means" with "ends" or completely ignore "ends." Our profession is filled with well-intentioned persons whose behavior reflects their fervent desire to get programs going for their needy clients! The energy devoted to such programs is admirable but part of it should be devoted to: (a) clearly defining the problems which each program attempts to resolve; (b) specifying the desired outcomes which program recipients, primarily, and program staff, secondarily, are expected to achieve; and (c) assessing the extent to which desired as well as unexpected (positive and negative) outcomes result from the program. We have experienced difficulty training counseling personnel to discriminate between program activities, processes, or strategies and program ends or outcomes.

6. The lack of formulation and use of systematic planning models which outline all stages of the design, implementation, evaluation, and feedback/revision of career guidance programs. The planning approaches upon which many programs seem to be developed appear to be truncated. Notable exceptions include: Operation Guidance, based on Robert Campbell's systems approach developed at Ohio State University, now being field tested in four sites across the country; and our planning process, which has evolved over the last six years of research and development effort, including pilot tests in two schools in the San Jose (California) Unified School District and at Booker T. Washington Junior-Senior High School in Houston, Texas. Recently it has been adapted in an exemplary effort by the guidance personnel of the Mesa (Arizona) Public Schools and is currently undergoing extension in the Beaverton (Oregon) Public Schools. Such planning approaches should receive continued attention. In fact, we believe they can be more beneficial in helping meet the career needs of youth than can the classical vocational development theories which have received so much reverence in the last two decades.

Conditions Surrounding These Rip-off Charges

Two conditions relate to these allegations. First, it is not obvious to us who is ripping off whom! We do not reject the very prevalent idea that counseling personnel are the victims because they are burdened with such heavy student-staff ratios that they do not really get an opportunity to show what really can be done if they have optimal time and resources. However, our belief is that the real victims are youth; they are not receiving the assistance they need and desire. We would like to see counseling personnel establish (and be allowed to use) priorities for the use of their resources; basing these

priorities on the needs of youth, not on their personal whims and interests; and demonstrating beyond doubt their accountability for helping youth resolve their most critical needs. This lack of focus seems to be a frequent problem.

Second, despite these concerns about the state of career guidance, our current USOE project gives us a vantage point for recognizing that some exciting programs are being implemented in the United States. These include major attempts to realign guidance and counseling services and resources to provide better career assistance to youth. Anita Mitchell's evolving project in Culver City (California) deserves close observation by our profession. She is capitalizing both on her extensive experience in building accountability into pupil personnel services and the impressive computer-based activities of Jo Ann Harris and her group of developers of the Computerized Vocation Information System in Villa Park, Illinois. Another milestone covering reorganization of guidance and counseling K-12 is the "Accountability for Counselors" thrust emerging in Mesa, Arizona. It bears some resemblance to the Hood River (Oregon) comprehensive program which is illustrative of what can be done if a school district employs intensive program planning. George Leonard's influence is clearly seen in Detroit's "Developmental Career Guidance Program" which seems to delve into the needs of ethnic minority youth and to recognize that the resources of trained paraprofessionals can be concentrated on such needs. Innovative training programs for paraprofessionals have been documented by Salim and Vogan in Rochester (New York) and by Joseph Dameron at North Texas State University. Dameron's competency-based training for guidance associates and professional counselors looks especially promising. Also worthy of review is Robert Swan's Career Guidance Specialist training at the Long Beach campus of the California State University.

"Project Gold" (Guidance in Occupational Life Development) in Okanagan (Washington) seems to have much to share with personnel in rural communities where guidance services are difficult to provide for schools spread out across a county. The work of Sunny Hansen and Wesley Tennyson in Minneapolis (Minnesota) should be followed by persons desiring to plan more effective curriculum-based programs and services for all youth and special subgroups such as women.

Some solid school-based placement and follow-up services are available for careful review. Cleveland's Job Development Program for inner city youth has provided a model for similar programs in places like Atlanta and Pittsburgh. Lillian Buckingham's Placement Service of the Baltimore Public Schools demonstrates the close articulation of placement and follow-up as well as the use of a state-supported job data bank. Cleveland's Employability Development Team illustrates how paraprofessionals can staff an intensified attempt to respond to the needs of drop-out prone youth in economically disadvantaged areas. The Lenawee Vocational-Technical Center in Adrian (Michigan) shows characteristics of a county-wide placement service which reaches youth in an area vocational center as well as local high schools.

A Career Guidance Program Planning Model

Our research and development activities over the last six years have produced a planning model for developing, implementing, evaluating, and revising programs which facilitate the career planning and development of youth (Jones, et al, 1972). The use of a model such as the following can help counseling and guidance personnel to resolve the issues noted earlier. The model includes these planning elements:

1. Identification of youth development needs and the translation of these needs into measurable objectives delineating desired youth outcomes.

2. Classification of objectives by commonalities and priorities which serve as guidelines for the design of guidance and counseling programs.

3. Specification of alternative strategies which could be used in guidance and counseling programs, and selection of the strategies which seem most appropriate for particular groups of objectives.

4. Design, scheduling, and implementation of selected strategies through the organization of instructional and counseling materials and procedures into individualized guidance-related learning units.

5. Evaluation of the efficiency and effectiveness of such units in helping students achieve both the desired terminal outcomes specified in each unit's behavioral objectives and unanticipated results.

We have been experimenting with writing this model in a variety of training program formats to facilitate the professional development of school and district personnel. At the same time, we are trying to make it applicable to, as well as financially feasible for, a variety of school and district settings. We predict that use of this planning model will foster program accountability because the model requires the specification of measurable objectives that describe desired youth outcomes. It is expected that this effort will contribute to the success of career education programs in the United States by producing information useful to local, state, and national planners who are responsible for recommending improvements in career guidance, counseling, and placement services for the noncollege-bound.

This model has been used in varied field tests of a Comprehensive Career Guidance System (CCGS) developed by Jones, Nelson, Gapschow, and Hamilton (1971). The CCGS focuses on the six areas of youth needs outlined previously. For each of these areas, it covers certain developmental guidance activities such as orientation, personal assessment, information about personal choice options, decision making, and goal formulation. In addition, prescribed learning experiences are identified for resolving problems experienced only by some students. Project TALENT data and related tests are used to help youth assess their developed abilities in the educational and vocational areas of youth

decision making. The overall focus of the program is on assisting students to make decisions for themselves and thus to produce changes in their lives for themselves. Further field evaluation is needed to determine whether this type of systematic planning approach and this type of developmental guidance model will be amenable to cost-benefit analyses and will be found to be both effective and efficient in enabling youth to resolve their career planning and development needs.

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