A SURVEY OF A GROUP OF BUSINESS AND INDUSTRIAL PSYCHOLOGISTS

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TABLE OF CONTENTS

INTRODUCTION 1

HISTORICAL SETTING OF THE PROBLEM 4

PROCEDURE 10

The Subjects 10

The Interview and Check List 11

RESULTS 17

Characteristics of the Sample 17

The Distribution of Occupational Specialties . 23

The Distribution of Kinds of Work 27

Evaluation of Experience 35

Relative Importance of Courses 42

OBSERVATIONS 50

SUMMARY AND CONCLUSIONS 55

ACKNOWLEDGMENTS 60

BIBLIOGRAPHY 61

APPENDIX 63

INTRODUCTION

Today, the field of psychology is ever increasing in both its size and scope. The fact that the National Research Foundation, in its congressional plans, has classified psychology as one of the biological sciences is one factor supporting this statement. Further, the possibility of contributions by psychology to education, industry, and public relations is increasingly appreciated by the general public. Proof of this is found in the steadily increasing number of individuals who make their living as professional psychologists. The past decade has seen the American Psychological Association grow from 2,527 to 6,735 members.

This phenomenal growth has been stimulated by three factors, a) the contributions of psychologists to the war effort, b) Government's recognition of their contribution to peace-time activities, and c) the public's appreciation of their contribution to the solution of everyday practical problems. The term "psychologist" today is a rubric under which a great variety of specialists are classified. Examination of the official yearbook of the American Psychological Association reveals 17 different specializations. This generic classification gives little idea of the various specific duties of the specializations. The group with which the author was particularly concerned in this study is that designated as

"Business and Industrial".

The services of individuals in this group are in increasing demand by business, industry, and the military services. For the purposes of this study "military" psychologists have been classified with the "Business and Industrial" psychologists since in one sense the services represent the largest single industry in the country. This demand for psychologists versed in the techniques, skills, and knowledges applicable to industrial situations raises two questions for those institutions engaged in training professional psychologists. What is the demand or market for individuals trained for this field of specialization and what training should be given prospective entrants into this field? It is this last question with which the writer is specifically concerned.

The decision as to the type and amount of training cannot be by fiat. Rather, it is necessary to determine what preparation psychologists actively engaged in the field have, what they are doing, and what, on the basis of their experience, they have found to be important in training other personnel. This information can be obtained in either of two ways, by questionnaires or by interviews. The author has chosen to use depth interviews of semidirective nature. The interviews were directive only in the sense that the interviewer secured an expression of the subject's attitudes and beliefs to a basic core of questions.

The findings from these interviews are presented subse-

quently and should form an objective basis on which sound judgments can be made as to the type and amount of training needed. The findings for the group as a whole are compared with the findings for various subgroups. The total group has been broken down into subgroups on the basis of three criteria: the type of organization with which the individual is associated; i.e., a consulting firm, an advertising agency, etc., according to the individual's field or fields of specialization as indicated by what he actually does and by age groups. Since most individuals indicated more than one field of specialization, the total of these groups exceeds the number interviewed.

A total of 63 individuals were interviewed. Thus, when classified according to organizational affiliation, the N's become small. It is for this reason fundamentally that this report is descriptive rather than quantitative. Thus, only descriptive statistics have been employed since measures of statistical significance would have little or no value. Another reason for such an account of the findings is that the data represent either the estimates of individuals' or their beliefs. Because of the small N and the descriptive nature of this report, the data have been recorded only to the nearest per cent in order to prevent any implication of undue precision.

HISTORICAL SETTING OF THE PROBLEM

There has been a rapidly increasing awareness during the past 15 years of the necessity for preparing students more effectively for the applied fields of psychology. A search of the literature revealed 20 articles concerned with this problem. Only 6 articles appeared in the 11 year period, 1934-1944. In 1946, 6 other articles were published on the subject, in 1947 1 article and 1948 a total of 7 articles appeared. The war had two effects: it stimulated widespread interest in the applied aspects of psychology, and deterred authors from publishing in the period 1941-45. These two factors probably account for the heavy concentration of articles in 1946 and 1948. This interest was not confined to American psychologists alone as evidenced by the fact that two of the articles published since the war were by Canadians and four by British psychologists.

Sisson (1934), discussing the output of Ph.D.'s relative to their absorption by the teaching professions, stated that the curriculum in psychology should be modified to prepare students more effectively for the applied fields. The next year, Casselberry (1935), writing on psychologists in private practice, discussed the work of such individuals and briefly commented on the services they render and the training required for the work.

The qualifications of industrial psychologists first set forth by Uhrbrock (1937) were as follows: A thorough knowledge of scientific method, the ability to express technical material both orally and in writing for the consumption of the laity, maturity of the individual and a personality that is readily adaptable to industrial situations.

Darley and Berdie (1940) reported on the duties and qualifications for various branches of applied psychology. They listed eight fields of applied psychology: Clinical, Psychometrics, Consulting, Educational, Teaching, Industrial, Statistics and Miscellaneous. They concluded that in general most of the time of applied psychologists was spent in individual testing and administrative work. Less frequently they were engaged in group testing, interviewing, vocational guidance, remedial teaching and rehabilitation work. They pointed out that this group spent relatively little time on writing popular material, conducting market research and surveys, advertising problems, job analysis, instructing teachers in remedial work, and in preparing persons for civil service examinations. Careful scrutiny of the study leaves the impression that at that time applied psychology was mostly concerned with clinical and test problems. The exceptions to this were the industrial psychologists who were concerned with personnel and labor relations and market research. The miscellaneous group were for the most part doing administrative work, research, or test construction.

Hattwick (1940) reported a study comparing the type of work of psychologists in business with that of independent research organizations. The significance of this report for the present study lies in the fact that psychologists had sufficiently penetrated business fields by 1940 to merit comparison of their work with that of research organizations.

A training program specifically designed for the individual interested in a career as a consultant or as an industrial psychologist was set forth by Frisby (1944) for English students.

In 1946 two short articles appeared in the Bulletin of the Canadian Psychological Association. The first of these was by Bois (1946) and dealt with psychology in industry. The second, by Moore (1946), discussed the problems of psychology in business. While it was generally known that Canadian psychologists had been interested in applied aspects of psychology for several years, these are the first articles to appear in their literature.

Dydycha (1946) set forth opportunities for job placement in the United States and described the various fields. Evans (1946) pointed out that the future for consultants appeared bright, but warned that psychologists must prove flexible in industrial situations and must not work on abstract planes. Flory and Janney (1946) pointed out on the basis of their experience that Management is beginning to recognize the value of psychologists in solving problems involving human relations.

Vernon (1946), on the basis of a limited sample responding to a short questionnaire, pointed out the need for legal recognition of psychology as a profession. This bears on the present study, only in so far as that, until formal professional training is set up, untrained or poorly trained individuals can foist themselves on the public as applied psychologists.

McQuitty (1947) pointed out that to be most useful to industry, psychologists must become psychological industrialists by learning about industry. This supported Evans' contention for flexibility mentioned above. If industrial psychology is to advance, Bennett (1948) pointed out, industrial psychologists must employ an experimental approach to problems of human motivation and to the determination of the requirements underlying successful cooperation between people in industry. He also emphasized the need for internships in industry as part of the basic training.

Canter (1948), using a questionnaire, secured responses from 103 psychologists who held full time positions in business or industry. He reported extreme variability in the duties and functions of psychologists. Regardless of duties, however, they were using professional, psychological methods and techniques. He found that they were not particularly concerned with problems involving test construction, education and training, specific research, and labor relations.

Canter reported that psychologists in industry were

critical of the existing doctoral requirements, especially of the foreign language requirements. His respondents suggested (1) that students perform a series of small research studies requiring the application of many varied and different techniques, (2) that students participate in major research problems by "pooled research", (3) that they participate in courses or seminars on "Administration of Research". They also felt students should have training in expressing themselves both orally and in writing. Canter and his respondents felt that the future for psychologists in industry was bright but that universities should modify the present training to be more in line with the requirements of the jobs as they exist in industrial areas.

Cooke (1948), while discussing the opportunities for psychologists, psychiatrists, and psychiatric social workers, indicated the types of training required. Drever (1948), discussing the problem in England, proposed a five year training program, the fifth year to be experience in actual work in industry. This is comparable to suggestions in this country for the need for internships.

Frisby (1948) defined industrial psychology as "The science of behavior at work" and assumed the main concern to be in research. He also set forth a five year training program, three years of undergraduate work and two years of graduate work, the last of which is to be spent in the field under supervision.

Still another English writer, Mercer (1948), emphasized that training should be of two types, theoretical and practical. Under theoretical, the emphasis should be given to the application of experimental techniques to studies of social groups. She emphasized under 'practical', the need for adaptability to actual situations and for training in presenting simple intelligible reports to untrained persons. Finally, a fourth Englishman, Wilson (1948), concerned with training of applied psychologists, recommended two years of undergraduate training and two years of graduate training. He agreed with other writers as to the need for field work, but pointed out that it would be much more valuable if supervised field work could be had in several industries.

In summary it can be said that there is a growing demand that universities give consideration to specialized training needed for students planning to enter industry. Decisions as to the nature and amount of training should not be by fiat, but rather in terms of job analysis of the work and responsibilities of psychologists in industry. Considerable emphasis is laid on the need for practical experience, either under university supervision, or in the form of an internship in an actual industrial situation.

PROCEDURE

It is the purpose of this paper to analyze the jobs of a representative sample of business and industrial psychologists. On the basis of the jobs actually performed and the experiences of these men, the writer will attempt to make concrete suggestions for the training of persons desiring to enter the field of business and industrial psychology.

The Subjects

The criteria used in selecting subjects were as follows: a) The subject was listed as being a member of the business or industrial division of the A.P.A. b) The subject was not a member of the business or industrial division of the A.P.A., but was recommended by a member of said division as being a member of the A.P.A. and as engaged in business or industrial work. c) The subject was not a member of the A.P.A. because of age plus lack of necessary degrees, but was employed as a psychologist by some person who fits the first criterion. Data were collected from a total of 63 subjects. Of these, 54 were located in the New York City area, 6 were in the Washington, D. C. area and 3 were secured from Boston. d) The psychologists who fit the above criteria were also subject to a final criterion, that of availability to the interviewer; i.e., could they spare the time necessary for the interview.

Because of the decision to use interviews as against mailed questionnaires, the author was limited by time and finances to a small section of the nation. The question as to how representative the sample is now arises. An examination of the 1948 American Psychological Association's Directory reveals that approximately one-half to two-thirds of the psychologists in the business and industrial division are located in or around New York City. Slightly less than half of the entire sample include men from the New York City area who are members of the business and industrial division of the American Psychological Association. In this respect, the writer feels that the sample is representative. As far as the rest of the sample is concerned, there is no particular reason to believe that the subjects differ greatly in their work from other business or industrial psychologists throughout the nation.

The Interview and Check List

The interview itself varied from about 50 minutes to 2 hours depending on the subject and the environmental conditions. During this time the subject was questioned concerning a number of items listed on a check list placed before him, and the pertinent remarks of the subject were recorded by the interviewer. The questions covered three areas. The first area was to give one a thumb-nail sketch of the subject. The information obtained pertained to the subject's age, his degrees, and

the types of work he specialized in. Part two was designed to find out just what kinds of work or operations he participated in that were included in the projects in which he had a part. The third area covered the training, both academic and field, that the subject felt is desirable for a person entering the subject's field. A preliminary check list was designed and sent to 2 consulting psychologists who made a number of suggestions. A first revision was then sent for suggestions to 12 prominent academic psychologists who had some background of applied work. A second revision of the check list was tried out in preliminary interviews with 8 consulting psychologists and was found to be satisfactory with a few minor changes. On the basis of these changes the final check list was prepared and the interviewing was started.

The material immediately following consists of the questions listed on the check list together with such explanations and definitions as the writer considers necessary to prevent misinterpretation.

Part I

1. Age Group: 20-30____, 31-40____, 41-50____, 51 and over____.

2. State the various degrees that you have attained: B. S. or B. A.; M. S. or M. A.; Ph. D.; Other degrees.

3. In general you would classify your work under which of the following fields of work. Check each of the following

fields that is an important part of your work. This refers only to fields of work connected with industrial psychology.

___ a. Statistician
___ b. General Consultant
___ c. Test Specialist
___ d. Industrial Consultant
___ e. Human Engineering
___ f. Market Research
___ g. Advertising
___ h. Other (Please state)

Items (b) through (f) were defined operationally rather than in terms of any psychological rationale. General Consultant (b) refers to those people engaged in a multitude of small jobs which for the most part consist of "advising" various individuals concerning their individual personal and business problems. That is, the work borders on some form of guidance to individuals. The Test Specialists (c) include those people who are not only engaged in administering and interpreting tests but those who are constructing and/or publishing tests. The Industrial Consultants (d) are psychologists engaged in rendering various personnel services to industry whether they are members of a permanent staff of a firm or whether they are on a consulting basis.

Human Engineering (e) encompasses other designations such as engineering psychology, biomechanics, and psychotechnology. Personnel engaged in human engineering are interested primarily in the relationships between men and machines. As a result of this interest they are concerned not only with the design of single machines in terms of the operator and the design of whole systems of machines, but also the interrelationships between the

men who operate the machines.

Market Research (f) includes such things as product acceptance studies, communications research, program research and public opinion research.

In Part II, the subject was asked to indicate the types of operations that had occurred while working on the various projects in which he had participated during the past year. One should keep in mind that it is not necessary for the subject to be the sole participant in any given operation, he merely is required to have participated in said operation. The operations are listed and in some cases explained below.

1. Writing reports.

2. Oral reports. This consists of and refers to explanations of the written report to the client or employer as the case may be.

3. Statistical analysis.

4. Selling the job. This is not selling in the sense of getting a contract. Rather, it is selling in the sense of convincing the client and his employees of the soundness and value of the psychologist's work.

5. Testing. This refers to any phase of testing including administration, interpretation, construction and publishing of tests.

6. Contact work. This refers to time put into more or less formal attempts to gain new clients or business.

7. Selection of employees for the client or employer.

8. Attitude studies. This includes all phases of morale studies.

9. Market research. Communications research, program research, product acceptance and studies of public opinion are classified under this heading. Morale studies are excluded from this classification.

10. Job analysis.

11. Labor or employee relations. This refers not only to contract negotiations but also the handling of grievances.

12. Counseling or interviewing the client's or employer's employees. This includes such things as job placement, job adjustment, vocational guidance, and clinical advice.

13. Designing new equipment. This and the next item refer to equipment such as machines, and does not refer to paper and pencil devices as tests and forms.

14. Redesigning equipment.

Part III has for the sake of interpretation been divided into two subgroups and will be presented that way both here and in subsequent paragraphs. The subject was requested to rate the various items on a five point rating scale. The items were rated as being essential, important, of some value, of no value, or detrimental to an individual entering their field. Items listed in the "Some Value" column were considered by the subjects as being neutral to slightly positive in value, while those placed in the "No Value" column were considered to be slightly on the negative side. The subject was asked to rate

the items from the point of view of helping an undergraduate who planned to enter his own field. This undergraduate was not to be of such caliber that one could expect him to rise to the top, but rather he was one who would be competent to carry on good research without supervision. With all this in mind, the subject was asked to rate the following items.

1. a) Bachelor's degree
   b) Master's degree in psychology
   c) Ph. D. in psychology

2. Original research in psychology.

3. Applied psychological experience. This refers mainly to any experience in which the individual will "learn the language of the profession". It may be done as a graduate assistant on some project under a qualified psychologist or in some sort of internship or wherever he can encounter actual problems in applied psychology.

4. Business or industrial experience (non-psychological). This refers to experience secured as a result of being employed by business or industry in some capacity.

5. Experience in the client's or employer's industry. This item is similar to (4) but refers to a specific business experience similar to that of the present client.

6. Teaching experience in psychology.

The second section of Part III of the check list consists of a list of courses which the subject must rate in the manner indicated above. The items are course titles and the subject judged them solely on his own knowledge or estimate of what is

or should in his opinion be taught under each item. The items are listed below.

1. Elementary Statistics
2. Statistical Inference (Interpretation)
3. Experimental Psychology
4. Industrial Psychology
5. Algebra

6. Group Testing (Excluding test construction)
7. Market Research and Measurement
8. Personnel Management
9. Social Psychology
10. Trigonometry

11. Calculus
12. Individual Testing (Excluding test construction)
13. Principles and Techniques of Counseling
14. Occupational Counseling and Guidance
15. Analytical Geometry

16. Labor Management
17. Labor Economics
18. Psychology of Advertising and Selling
19. Mental Hygiene
20. Abnormal Psychology

21. Physiological Psychology
22. Physics
23. Sociology
24. Human Physiology
25. Chemistry

RESULTS

Characteristics of the Sample

Tables 1, 2, and 3 are presented so that the reader may see how the several subgroups compare with the entire sample with respect to the age and the highest academic attainment of the subjects. The heavy loadings in the middle age groups and

the Ph. D. bracket are noteworthy. The loading of the middle age group might be expected in any normal professional group, however, the loading of Ph. D. in the sample suggests two possibilities: a) The results of this report will be noticeably affected by any biases common to men with this degree. b) This might be an indication that the minimum requirements for most positions in the applied field of psychology are the Ph. D.

Each individual was requested to indicate the fields in which he worked. As might be expected they indicated more than one work area, in fact the average was 2.5 work areas or "specializations" per person. The percentage of the total group engaged in each of the seven fields as shown in Table 4 varied from 16 to 48 per cent, with an average of 37 per cent. Almost half of the individuals, due to the nature of their work, considers themselves as "specialists" in statistics and general consulting.

Table 1. Ages and academic attainments of the entire sample and the organizational subgroups.

Type of organization:	Entire sample	Consulting	Industrial	Military	Advertising	Independent psychologist
Total no. in each group	63	34	12	9	4	4
	per cent					
Age groups						
20-30	13	24	-	-	-	-
31-40	52	29	83	100	50	50
41-50	22	35	-	-	-	50
51 & up	13	12	17	-	50	-
Highest degree held						
Bachelor	8	14	-	-	-	-
Master	24	18	25	56	-	25
Ph. D.	68	68	75	44	100	75

Table 2. Ages and academic attainment of the entire sample and the occupational subgroups.

Type of specialty	Entire sample	Statistician	General consultant	Test specialists	Industrial consultant	Human Engr.	Market Research	Advertising
Total no. in each group	63	30	30	27	25	22	19	10
	per cent							
Age groups								
20-30	13	17	3	7	12	23	10	10
31-40	52	46	44	63	44	50	16	20
41-50	22	20	33	15	24	18	53	30
51 & up	13	17	20	15	20	9	21	40
Highest degree held								
Bachelor	8	7	-	8	-	9	5	20
Master	24	23	13	22	16	18	16	-
Ph. D.	68	70	87	70	84	73	79	80

Table 3. Academic attainments of the entire sample and the age groups.

	Age groups				Entire
	20-30	31-40	41-50	51 & up	sample
	8	31	16	8	63
	per cent				
Highest degree held					
Bachelor	50	3	-	-	8
Master	25	36	12	-	24
Ph. D.	25	61	88	100	68

Table 4. The percentage of the entire sample engaged in the various fields of specialization.

	Statis-tician	General consult.	Test special.	Indust. consult.	Human Engr.	Market Res.	Adver-tising
Entire sample	48	48	43	40	35	30	16

When the psychologists were classified as to the type of organization with which they were affiliated, the distribution of activities varied not only from that of the entire group but also from group to group. In Figs. 1, 2 and 3 is shown a profile representing the percentage of all individuals who classified themselves as "specialists" in the several fields. The construction of this and the subsequent figures needs explanation.

The mean or average per cent of the entire group engaged in each of the activities is 37 per cent. The standard error of the proportion is 6.08 per cent. This value, or some function of it, can be used to set limits, which will indicate those areas of work in which the applied psychologists are most active, and those fields in which they are least active. The function which has been selected for this study is 1.65 Standard Error. Using as limits a plus and minus 1.65 Standard Error, then only once in 20 times would a value fall above the upper limit, and once in 20 times below the lower limit.

Values falling at or above the upper limit represent work areas in which the psychologists as a group are predominantly active. Correspondingly values falling at or below the lower limit, represent fields with a relatively low concentration of activity. This concept makes it possible to prepare a profile in which work activities fall into three groups; major, average and minor participation. It has the further advantage that once the subgroups have been subjected to the same transformation of units of measurement, it permits a direct comparison of the relative concentration of activities in the various subgroups.

For descriptive purposes, on Figs. 1 through 6, activities falling at or above +1.65 S. E. have been placed at that point; while those items falling at or below the -1.65 S.E. have been placed at that point. All items falling within the

chosen limits of ±1.65 S.E. have been placed at the mean.

The following paragraphs describe how the several groups vary from the profiles of the entire sample. The column of numbers on the right of the list of items represents the per cent of the total sample answering the items. Only items that deviate from the profile will be mentioned.

The Distribution of Occupational Specialties

In Figs. 1, 2 and 3 there is presented a profile showing the concentration of occupational specialties of the entire sample. One may identify the profile by the solid line that joins a series of x's on the figure.

A brief examination of the profile reveals the greatest concentration of activities of the whole group falls in the fields of statistics and general consulting. Activities in the fields of testing, industrial consulting, human engineering and market research seem to be of average importance, while very few of the respondents are concerned with advertising.

Examination of Fig. 1 shows that members of consulting firms (1) participate somewhat less in statistical work and general consulting than does the total group, but that otherwise their activities are comparable to the general group.

Psychologists affiliated with industrial firms (2) differ from the whole sample in that they do more testing and less

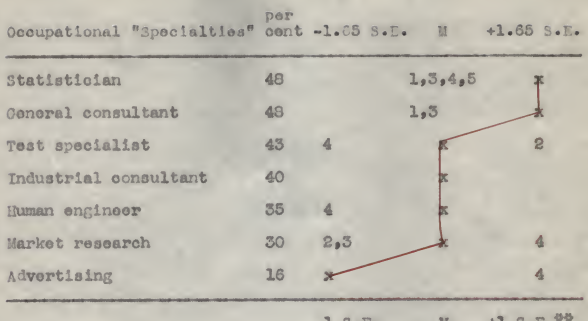

Fig. 1. Distribution of occupational "specialties" of the entire sample and the organizational subgroups.*

* Key:

x - Entire sample

1 - Consulting organizations

2 - Industrial organizations

3 - Military organizations

4 - Advertising organizations

5 - Independent psychologists

** Due to the small N in groups 4 and 5 the limits are ±1 S.E.

market research. The military psychologists (3), however, are less interested in statistics and general consulting work than the sample as a whole. They indicate that market research is definitely a minor part of their work. The advertising group (4) differs rather markedly from other groups in that its members consider testing and human engineering of minor importance. They also have less than normal concern for statistics. They consider, however, that both advertising and market research are of major importance. The independent psychologists (5) put less emphasis on statistics than the entire sample, but otherwise agreed with them as to the relative importance of the various areas.

Turning to Fig. 2 one finds that the statisticians (1) did more testing and less general consulting and human engineering than the entire sample. General consultants (2) did less statistical work but otherwise agreed with the entire group. The test specialists (3) and industrial consultants (4) indicated that general consulting and market research are less important than the whole group considered them. Human engineers (5) laid less stress on statistics and market research than did the group as a whole; however, they emphasized industrial consulting. The market research (6) people considered advertising of average importance as they did statisticians and they did very little human engineering. People in advertising (7) placed market research as the most important activity in their field and rated statistics and general con-

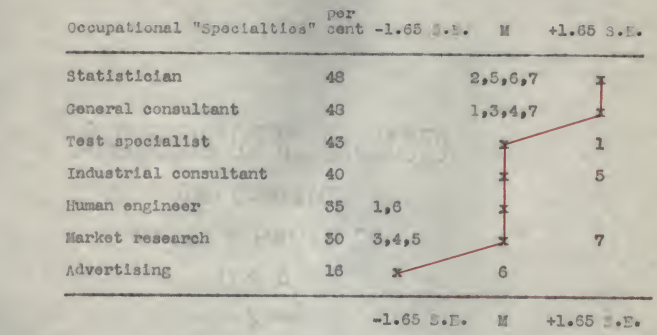

Fig. 2. Distribution of occupational specialties of the entire sample and specialist subgroups.*

* Key:

x - Entire sample

1 - Statistician

2 - General consultant

3 - Test specialist

4 - Industrial consultant

5 - Human engineer

6 - Market research

7 - Advertising

sulting of average importance.

In looking at Fig. 3, one sees that no age group indicated any special concentration of activity in either statistics or general consulting. The 20-30 age group (1) indicated no difference at all between the various "specialties". This is probably explained by the fact that they were too young to have had the opportunity to become specialists in the true sense of the word. The group 31-40 years of age (2) considered market research as one of their minor fields. The men between the ages of 41 and 50 (3) considered testing and human engineering as minor fields of activity. The older group; i.e., those 51 years old and over (4) did little work in human engineering. They did, however, rate advertising as an important field of activity. The fact that human engineering, as defined, is such a new field may explain why the men in the two older groups were not doing much work in that area. Viewing the figure in an over all fashion, one can safely say that age does not determine the type of work that a man has specialized in, but it will to some extent indicate the field in which he has not specialized.

The Distribution of Kinds of Work

Figures 4, 5 and 6 are concerned with the kinds of work that occur most frequently in projects in which the men participate.

Occupational "Specialties"	per cent	-1.65 S.E.	M	+1.65 S.E.
Statistician	48		1,2,3,4	x
General consultant	48		1,2,3,4	x
Test specialist	43	3	x	
Industrial consultant	40		x	
Human engineer	35	3,4	x	
Market research	30	2	x	
Advertising	16	x	1,4	
		-1.65 S.E.	M	+1.65 S.E.

Fig. 3. Distribution of occupational specialties of the entire sample and the age subgroups.*

* Key:

x - Entire sample

1 - 20 to 30

2 - 31 to 40

3 - 41 to 50

4 - 51 and up

A brief review of the profiles on Figs. 4, 5 and 6 reveals more of the sample participating in writing reports, oral reports, statistical analysis, selling the job and testing than participating in contact work, selection, attitude studies and market research. As a whole, the sample has little to do with job analysis, labor relations, counseling, flow charts, designing new equipment or redesigning equipment.

An examination of Fig. 4 shows that members of consulting firms (1) varied from the profile of the entire sample only in that they did more contact work. The men in industry (2) did less contact work and more job analysis, labor relations, and counseling of client's or employer's employees than did the group as a whole. Apparently the military psychologists (3) did less work on attitude studies and market research than did the entire group. On the other hand, this group was rather active in such work as job analysis, flow charts and the designing and redesigning of equipment.

Men who were connected with advertising firms (4) did more contact work, market research, job analysis, labor relations and counseling of employees than the group as a whole. Also they were involved fewer times with statistical analyses, testing and selection. The independent psychologists (5) indicated that selling the job and testing were done less often than in the entire group. On the other hand, contact work, job analysis, labor relations, counseling client's employees and designing and redesigning equipment were encountered more

Types of work	per cent	-1.65 S.E.	M	+1.65 S.E.
Writing reports	98			x
Oral reports	90			x
Statistical analysis	87		4	x
Selling the job	76		5	x
Testing	68	4	5	x
Contact work	56	2	x	1,4,5
Selection	51	4	x	
Attitude studies	48	3	x	
Market research	41	3	x	4
Job analysis	32	x	2,3,4,5	
Labor relations	30	x	2,4,5	
Counseling	27	x	2,4,5	
Flow charts	21	x	3	
Designing equipment	19	x	3,5	
Redesigning equipment	18	x	3,5	
		-1 S.E.	M	+1 S.E.**

Fig. 4. Distribution of types of work of the entire sample and the organizational subgroups.*

* Key:

x - Entire sample
1 - Consulting organizations
2 - Industrial organizations
3 - Military organizations
4 - Advertising organizations
5 - Independent psychologists

** Due to the small N in groups 4 and 5 the limits are ±1 S.E.

often by this group.

It is not surprising that the members of consulting firms (1), advertising firms (4) and the independent psychologists (5) indicated more activity in contact work than the whole group, since they must solicit business and clients or go out of business entirely. From the general point of view, it would be fairly safe to say that because of the general disparity of the various groups with the profile of the group, the kind of work a man does cannot be identified with the type of organization with which he is affiliated. Probably the reason why the members of consulting firms agreed so closely with the group as a whole is that they represented slightly more than half of the entire sample.

Figure 5 shows that the statisticians (1) varied from the sample's norm only in that they did less market research. The general consultant's (2) indicated that they did more contact work and less testing than did the entire sample. Men who considered themselves as test specialists (3) assigned selection and market research a minor role. Industrial consultants (4) varied from the norm only by attaching less significance to market research.

The human engineers (5) indicated that they did less testing and market research and more job analysis and designing and redesigning of equipment than was true of the entire sample. Market researchers (6) did less selling the job and testing than did the entire sample. On the other hand, they

Type of work	per cent	-1.65 S.E.	M	+1.65 S.E.
Writing reports	98			x
Oral reports	90			x
Statistical analysis	87		7	x
Selling the job	76		6,7	x
Testing	68		2,5,6,7	x
Contact work	56		x	2,6,7
Selection	51	3	x	
Attitude studies	48		x	6
Market research	41	1,3,4,5	x	6,7
Job analysis	32	x	5	
Labor relations	30	x	6,7	
Counseling	27	x		
Flow charts	21	x		
Designing equipment	19	x	5	
Redesigning equipment	18	x	5	
		-1.65 S.E.	M	+1.65 S.E.

Fig. 5. Distribution of types of work of the entire sample and occupational subgroups.*

* Key:

x - Entire sample
1 - Statistician
2 - General consultant
3 - Test specialists
4 - Industrial consultant
5 - Human engineer
6 - Market research
7 - Advertising

did more contact work, attitude studies, market research and labor relations. Psychologists who "specialized" in advertising (7) indicated that statistical analysis, testing and selling the job were not as frequently encountered as the whole sample indicated they were. However, these men considered contact work, market research and labor relations to be of more importance than the sample's profile indicates.

It is rather interesting to note in Fig. 6 that the age group 20-30 (1) considered 13 out of 15 items as having approximately average frequency, while the two exceptions - writing reports and statistical analysis - seem to occur in more of the projects than the other items. Again the answer to this may be found in the fact that these people were as yet too young to be specialists and, therefore, their activities were not concentrated in any particular area of work. The group 31-40 (2) did less market research work and more selection when compared with the entire sample. Men in the 41-50 (3) bracket said they did less work on selling the job and testing than did the sample as a whole. However, they stated that they did more contact work, labor relations, and counseling than the profile for the entire sample indicates. The psychologists who are 51 years of age and older (4) stated that they did less statistical analysis and testing and more job analysis, labor relations and redesigning of equipment than was normal for the entire sample.

Types of work	per cent	-1.65 S.E.	M	+1.65 S.E.
Writing reports	98			x
Oral reports	90		1	x
Statistical analysis	87		4	x
Selling the job	76		1,3	x
Testing	68		1,3,4	x
Contact work	56		x	3
Selection	51		x	2
Attitude studies	48		x	
Market research	41	2	x	
Job analysis	32	x	1,4	
Labor relations	30	x	1,3,4	
Counseling	27	x	1,3	
Flow charts	21	x	1	
Designing equipment	19	x	1	
Redesigning equipment	18	x	1,4	
		-1.65 S.E.	M	+1.65 S.E.

Fig. 6. Distribution of types of work of the entire sample and the age subgroups.*

* Key:

x - Entire sample
1 - 20 to 30
2 - 31 to 40
3 - 41 to 50
4 - 51 and up

Looking at all the Figs. 4, 5 and 6, one notes that there is fair agreement with the norms of the entire sample on the following items: writing reports, oral reports, statistical analysis, selection, attitude studies and the designing of flow charts. It is also interesting to note that 9 of the 16 groups felt that testing occurs less frequently than the profile of the group would have one believe.

Evaluation of Experience

Figures 7, 8 and 9 are designed to demonstrate graphically the value that men in the various groups place on certain types of experience, either academic or field, with respect to entering the same field of work in which they are now participating. In these figures and Figs. 10, 11 and 12, which deal with the importance of courses, five levels of importance were chosen; namely, primary, secondary, tertiary, average, and least importance. For an item to be of primary importance, at least 80 per cent of the men in the given group had to place the item in the essential or important columns on the check list. To be of secondary importance, from 70-79 per cent of the men had to place the item in the essential or important columns. To be of tertiary importance, only 60-69 per cent agreement in either the essential or important columns was necessary. If between 51 per cent and 59 per cent of the men in a given group placed an item in the

essential or important columns, then it was considered of average importance. However, if only between zero and 30 per cent considered the item important or essential, it was placed in the least important group. The column of percentages on the immediate right of the listed items indicates the percentage of the entire sample that placed any given item in either the essential or important columns on the check list.

In Figs. 7, 8 and 9 one notes that the group as a whole considered the master's degree and the Ph. D. of primary importance. Original research in psychology was ranked as being of secondary import; while applied psychological experience and business or industrial experience were rated as being of tertiary importance. The sample rated experience in the client's industry of average value while experience in teaching psychology was considered the least desirable of the items listed on the check list.

Turning to Fig. 7 one notes that members of consulting firms (1) varied from the norm in that they rated original research in psychology of only tertiary importance while applied psychological experience is dropped to average importance and experience in the client's business or industry was added to the least desirable group. (The rank of the last item is easily understood, since consulting firms have many clients it would be impossible to have previous experience in the industry of all of one's clients.)

Degrees & experience	per cent	Least desirable	Average	Tertiary	Secondary	Primary
Master's degree	84			3	4,5	x
Ph. D.	84			2		x
Original research	78			1	x	3,4,5
Appl. psychological experience	64		1,2	x	3,4,5	
Business or indus. experience	60		2,3	x	4	5
Experience in client's industry	33	1	x			
Teaching psychology	18	x	5			
		0-30%	31-59%	60-69%	70-79%	80-100%

Fig. 7. Comparison of desired experience of the entire sample with the organizational subgroups.*

* Key:

x - Entire sample

1 - Consulting organizations

2 - Industrial organizations

3 - Military organizations

4 - Advertising organizations

5 - Independent psychologists

Members of industrial firms (2) considered the Ph. D. degree of only tertiary importance and they also rated applied psychological experience and business or industrial experience as of only average importance. Psychologists employed by the military (3) considered the master's degree as tertiary while they indicated that original research in psychology was of primary importance. They raised applied psychological experience to a secondary level but dropped business or industrial experience to average importance.

Advertising men (4) placed the master's degree together with applied psychological experience and business or industrial experience as being of secondary importance. However, they indicated that original research in psychology is of primary importance. The independent psychologists (5) considered the master's degree and applied psychological experience as secondary to original research in psychology and business or industrial experience. This group of men also considered teaching as of average importance. A likely explanation for the last item is that most of the men in this group are at present teaching in various institutions besides carrying on their work in business and industry.

A cursory examination of Fig. 8 reveals less disagreement among the specialists with regard to training and experience than was found among organizations.

The statisticians (1) varied from the entire sample only in adding experience in the client's or employer's industry to

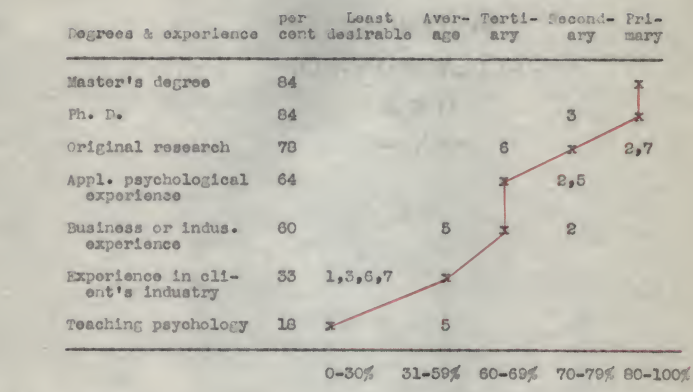

Fig. 8. Comparison of desired experience of the entire sample with the occupational subgroups.*

* Key:

x - Entire sample

1 - Statistician

2 - General consultant

3 - Test specialists

4 - Industrial consultant

5 - Human engineer

6 - Market research

7 - Advertising

the least important group. The general consultants (2) indicated that original research in psychology was of prime importance and they also raised applied psychological experience and business or industrial experience, but only to the secondary level of importance. The men who considered themselves as test specialists (3) ranked the Ph. D. as secondary and placed experience in the client's or employer's industry in the least important level. The industrial consultants (4) agreed completely with the entire sample's profile.

Men who considered themselves as human engineers (5) placed secondary importance on applied psychological experience and only average importance on business or industrial experience and teaching psychology. The market researcher (6) ranked original research in psychology as being of tertiary importance and indicated that experience in the client's or employer's industry was of least importance. The men in advertising (7) considered original research in psychology of primary value while they rated experience in the client's or employer's industry as having least significance.

Turning to Fig. 9, one finds that the youngest group; i.e., those 20-30 years of age (1), ranked the Ph. D. as being of secondary importance while original research in psychology, business or industrial experience and experience in the client's or employer's industry were rated as being of tertiary, average and least importance, respectively. The men in the 31-40 group (2) ranked original research in psychology of

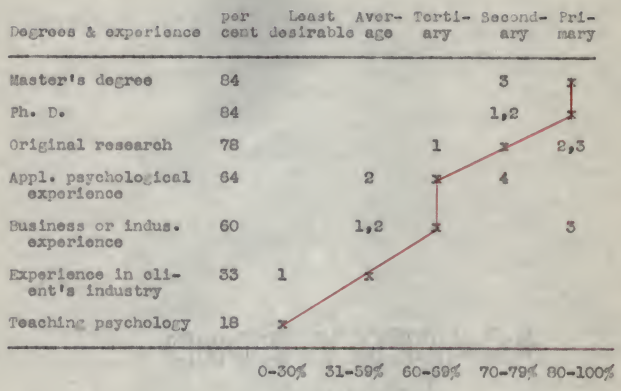

Fig. 9. Comparison of desired experience of the entire sample with the age groups.

* Key:

x - Entire sample

1 - 20 to 30

2 - 31 to 40

3 - 41 to 50

4 - 51 and up

primary importance while the Ph. D. was of only secondary importance, and both applied psychological experience and business or industrial experience dropped to the average level. The master's degree, according to the 41-50 group (3), was of secondary importance while original research in psychology and business or industrial experience were of primary value. The men in the oldest age group (4), 51 and up, varied from the entire sample only in their indicating that applied psychological experience should be of secondary importance.

Relative Importance of Courses

Turning to Figs. 10, 11 and 12, one finds in the left column the list of courses in order of their importance. The figures immediately following each course title indicate the percentage of the entire sample that considered the given item as essential or important. The profile of the entire sample is indicated in the same manner as was done on the preceding figures.

The group as a whole considered elementary statistics, statistical inference, and experimental psychology as being of prime importance. Industrial psychology and algebra were of secondary importance while group testing was rated at the tertiary level. The following courses were considered of average value by the whole group: market research, personnel

management, social psychology, trigonometry, calculus, individual testing, principles and techniques of counseling, occupational counseling and guidance, analytical geometry, labor management and labor economics. Of the courses on the check list these were considered of least value: psychology of advertising and selling, mental hygiene, abnormal psychology, physiological psychology, physics, sociology, human physiology and chemistry.

In Fig. 10, one notes that the members of consulting firms (1) deviated from the opinion of the group in only four instances; namely, they dropped algebra to tertiary importance while social psychology was raised to that level. In addition this group raised both mental hygiene and abnormal psychology to the average level.

Men employed by industrial firms (2) indicated that algebra and group testing are of prime importance while occupational counseling and guidance is of secondary importance. Tertiary value was placed on industrial psychology and personnel management. The psychology of advertising and selling together with mental hygiene were considered of average importance to this particular group.

The military psychologists (3) placed primary importance on industrial psychology, while market research and calculus were of tertiary value. Physiological psychology, physics and human physiology were raised to average importance while social psychology, individual testing, principles and techniques

Courses	per cent desirable	Aver- age	Terti- ary	Second- ary	Pri- mary
Elem. statistics	94				x
Stat. inference	91				x
Expt. psychology	84				x
Indus. psychology	76		2	x	3,4,5
Algebra	75		1	x	2,4
Group testing	67	4	x	5	2
Market research	59	x	3		4,5
Personnel mgmt.	52	x	2	5	
Social psych.	52	3 x	1		4
Trigonometry	46	x		5	
Calculus	43	4,5 x	3		
Indiv. testing	43	3,4 x			5
Prin.tech.coun.*	41	3,4 x		5	
Occup.coun.guid.**	41	3,4 x		2	
Analytical geom.	40	x			
Labor mgmt.	35	3 x			
Labor economics	32	3,5 x			
Psych.adv.sell.***	29	x 2,5		4	
Mental hygiene	28	x 1,2,5			
Abnormal psych.	27	x 1,5			
Physiol. psych.	27	x 3,5			
Physics	27	x 3		5	
Sociology	24	x			4
Human physiology	22	x 3,5			
Chemistry	16	x 5			

0-30% 31-59% 60-69% 70-79% 80-100%

Fig. 10. Comparison of desirable course work of the entire sample with subgroups.****

* Principles and techniques of counseling
** Occupational counseling and guidance
*** Psychology of advertising and selling

**** Key:

1 - Consulting organizations
2 - Industrial organizations
3 - Military organizations
4 - Advertising organizations
5 - Independent psychologists

of counseling, occupational counseling and guidance, labor management, and labor economics were dropped to the least important level.

The men in advertising firms (4) considered industrial psychology, algebra, market research, social psychology and sociology of primary importance while the psychology of advertising and selling was of secondary importance. This group also considered the following of least importance: group testing, calculus, individual testing, principles and techniques of counseling and occupational counseling and guidance.

The independent psychologists (5) ranked the following as being of primary importance: industrial psychology, market research and individual testing. The group indicated that group testing, personnel management, trigonometry, principles and techniques of counseling and physics were of secondary importance. This group also indicated that the psychology of advertising and selling, mental hygiene, abnormal psychology, physiological psychology, human physiology and chemistry are all of average significance while they rated calculus and labor economics of little importance.

An examination of Fig. 11 reveals that the statisticians (1) considered algebra of primary importance and group testing of secondary value while industrial psychology is only of tertiary importance. The same group also indicated that psychology of advertising and selling should be raised to the average

Courses	per cent	Least desirable	Average	Tertiary	Secondary	Primary
Elem. statistics	94					1
Stat. inference	91					1
Expt. psychology	84					1
Indus. psychology	76			1,6	1	2,4,5,7
Algebra	75		6		1	1,3,4,5,7
Group testing	67		6,7	1	1,2	3
Market research	59		1	2	5,6	
Personnel mgmt.	52		1	4,5		
Social psych.	52		1		6	7
Trigonometry	46		1			
Calculus	43		1			
Indiv. testing	43	7	1	2		
Prin.tech.coun.*	41		1	6		
Occup.coun.guid.**	41	7	1			
Analytical geom.	40	3,6	1			
Labor mgmt.	35		1			
Labor economics	32	4	1			
Psych.adv.sell.***	29	1	1,2,4,6,7			
Mental hygiene	28	1	2,3,6,7			
Abnormal psych.	27	1	2,6			
Physiol. psych.	27	1	2,5			
Physics	27	1	4,5			
Sociology	24	1	6,7			
Human physiology	22	1	5			
Chemistry	16	1				

0-30% 31-59% 60-69% 70-79% 80-100%

Fig. 11. Comparison of desirable course work of the entire sample with the occupational subgroups.****

* Principles and techniques of counseling
** Occupational counseling and guidance
*** Psychology of advertising and selling

**** Key:

1 - Statistician
2 - General consultant
3 - Test specialist
4 - Industrial consultant
5 - Human engineer
6 - Market research
7 - Advertising

level. The general consultants (2) considered that industrial psychology is of primary importance and that group testing is at the secondary level. Both market research and individual testing were of tertiary importance while psychology of advertising and selling, mental hygiene, abnormal psychology and physiological psychology were of average significance. Of primary importance to the test specialists (3) were algebra and group testing while mental hygiene was of average importance and analytical geometry was dropped to the least significant level.

The industrial consultants (4) considered industrial psychology and algebra of primary importance and personnel management of tertiary value. They also considered psychology of advertising and selling and physics to be of average value while labor economics had a low rating. Industrial psychology and algebra were considered by the human engineers (5) as being of primary significance while market research and personnel management were of secondary and tertiary import, respectively. The group also considered of average value the following courses: physiological psychology, physics and human physiology.

The market researchers (6) indicated that market research and social psychology were of secondary value and that industrial psychology and principles and techniques of counseling were of tertiary significance. They also considered of average significance algebra, group testing, psychology of advertising

and selling, mental hygiene, abnormal psychology and sociology. Analytical geometry, to this group, was of little import. Psychologists who specialized in advertising (7) considered industrial psychology, algebra and social psychology of primary importance to them. Courses that were of average value are as follows: group testing, psychology of advertising and selling, mental hygiene and sociology, while individual testing and occupational counseling and guidance were of no importance.

Turning to Fig. 12 one notes that the group of psychologists, ages 20-30 (1), considered algebra as of primary importance while statistical inference was of secondary significance. This group indicated that experimental psychology, industrial psychology and market research were of tertiary value, while group testing, psychology of advertising and selling and physics were average in importance. The courses, occupational counseling and guidance, analytical geometry, labor management and labor economics were considered by this group to be of least value.

The group whose age is from 31-40 (2) ranked algebra and personnel management of primary and tertiary importance, respectively, while mental hygiene and physiological psychology were of average import. The group considered labor management and labor economics to be of least value.

The next group; i.e., 41-50 (3), placed prime importance on industrial psychology and secondary value on statistical

Courses	per cent	Least desirable	Average	Tertiary	Secondary	Primary
Elem. statistics	94					x
Stat. inference	91				1,3	x
Expt. psychology	84			1		x
Indus. psychology	76			1	x	3,4
Algebra	75		3		x	1,2,4
Group testing	67		1,3	x	4	
Market research	59		x	1,3,4		
Personnel mgmt.	52		x	3		
Social psych.	52		x	2,3	4	
Trigonometry	46		x	4		
Calculus	43	3	x	4		
Indiv. testing	43		x	4		
Prin.tech.coun.*	41		x			
Occup.coun.guid.**	41	1	x	4		
Analytical geom.	40	1	x	4		
Labor mgmt.	35	1,2	x			
Labor economics	32	1,2	x	4		
Psych.adv.sell.***	29	x	1,3,4			
Mental hygiene	28	x	2,3			
Abnormal psychology	27	x	3,4			
Physiol. psych.	27	x	2			
Physics	27	x	1,4			
Sociology	24	x	4			
Human physiology	22	x				
Chemistry	16	x				
		0-30%	31-59%	60-69%	70-79%	80-100%

Fig. 12. Comparison of desirable course work of the entire sample with the age groups.****

* Principles and techniques of counseling
** Occupational counseling and guidance
*** Psychology of advertising and selling

**** Key:

x - Entire sample
1 - 20-30
2 - 31-40
3 - 41-50
4 - 51 and up

inference. Tertiary significance was given to market research, personnel management and social psychology while algebra, group testing, psychology of advertising and selling, mental hygiene and abnormal psychology were considered of average significance. This group rated calculus of least value.

The group of psychologists who were 51 years and older (4) indicated that industrial psychology and algebra are of primary importance while group testing and social psychology were of secondary import. The group considered market research, trigonometry, calculus, individual testing, occupational counseling and guidance, analytical geometry and labor economics to be of tertiary importance. The psychology of advertising and selling, abnormal psychology, physics, and sociology were ranked as of average importance by this group of psychologists.

OBSERVATIONS

The beliefs of the entire sample concerning desirable experience and course work will first be reviewed.

The group as a whole felt that both the master's degree and the Ph. D. were of primary significance. However, looking at Table 5 which shows the percentage of respondents that considered these items essential or important, it is noted that the group considered the master's degree as essential to enter

the business and industrial field while the Ph. D. should be obtained if possible. The respondents also considered original research in psychology to be of secondary value while applied psychological experience and business or industrial experience is of tertiary importance. It is also rather important to note that the group rated teaching experience of little value in the field. They did say, however, that teaching gives one a better command of the theoretical aspects of psychology and possibly helps one in expressing himself before groups, but it has no direct value.

Table 5. Evaluation of the Master's and Ph. D. degree by the entire sample, in per cent.

Degree	Essential	Important	Less than important
Master's	54	30	16
Ph. D.	28	56	16

The respondents were rather emphatic in their evaluation of elementary statistics, statistical inference, and experimental psychology as being of prime significance. They also rated algebra and industrial psychology as being of secondary importance while only group testing was considered to be of tertiary import.

The courses that the group rated as being of little value

to the field of business or industrial psychology were: psychology of advertising and selling, mental hygiene, abnormal psychology, physiological psychology, physics, sociology, human physiology and chemistry.

During the course of the interviews nearly all of the respondents voluntarily suggested one or more items that they considered of some importance for people in their particular field. These items consisted of kinds of courses, types of experience, and various personality traits. Seventy-nine different items were suggested. For these 79 items the respondents gave 216 responses or nearly 3.5 suggestions per respondent. These items have been classified and placed into some 16 broad areas and will be discussed in terms of these areas.

Thirty-five respondents mentioned work or experience in the field of communications. Of these 28 respondents, or 44 per cent of the entire sample, stated that students should have more training in oral and written expression. That is, they should be trained to present technical material clearly and concisely so that the laity can understand the material. Five mentioned training in techniques of report writing to include the use of grammar, while one respondent mentioned the value of communication of ideas in industry and another suggested semantics and comparative languages.

The field of statistics was mentioned by 24 respondents, 14 of them urging still more statistics over and above that

mentioned on the check list. Here the opinion was expressed that this advanced statistics should include some design and interpretation of experiments. Sampling methods and the handling of mass data were recommended by seven psychologists while three others brought up the idea that students should have experience in collecting data together with the application of statistical methods.

Twelve respondents stated that industrial engineering or courses closely related to it such as time and motion study, job analysis, and basic course work in engineering were of great value. Three men considered electronics of some value, four psychologists mentioned drafting and one each suggested machine shop experience and traffic and safety engineering.

Test construction and the construction of questionnaires were suggested as very important by 13 psychologists while 5 others mentioned educational testing and tests and measurements.

Sixteen of the respondents were of the opinion that courses covering the rationale of scientific method; which would consist of courses like scientific method and logic, philosophy of science, the history of science, research techniques, and a course to show the differences between basic and applied research and the implications for industrial and academic situations, would be invaluable.

Some 13 respondents thought that applied experience was necessary. This they thought could be met by some kind of

internship, or could be done by working in an industry during the summer or as a last resort by field trips in psychology to industry. Still another group of 13 suggested that some training in business organization and management is essential. Several even went so far as to suggest a minor in business administration. Two men each expressed the need of some knowledge of visual aids, occupational analysis, and human relations while knowledge and use of source materials, technical knowledge of the equipment used by psychologists, systems research, foreign languages, photography and optics were mentioned only once.

More general psychological training was urged by 11 respondents, while only 10 recommended general work in the biological sciences. Some clinical experience, both theory and applied, seemed desirable to 9 psychologists. As far as general courses in economics and sociology are concerned, only 8 respondents mentioned their value. Seven respondents expressed a need for some training in educational psychology, while only 2 psychologists mentioned basic mathematics.

Three of the respondents were of the opinion that it is of prime importance that every psychologist spend a certain portion of his time in maintaining his professional status. This they felt one could do by reading, giving and writing papers, and maintaining contact with his fellow professionals.

Some of the respondents mentioned various personality traits that would help the student succeed in the field.

Most frequently mentioned, 9 times, was that the person be socially adaptable, next, he had to be willing to work hard. Three people mentioned this. One each mentioned the development of objective attitudes and being able to work with a group of people.

SUMMARY AND CONCLUSIONS

The problem of this paper as previously stated was to determine the kind of training that, in the opinion of men in the business and industrial field of psychology, is desirable for prospective entrants into said field.

Briefly, the literature was reviewed back to 1934 and it was pointed out that since that time there has been increasing interest in the problem of training industrial psychologists in not only this country but also in Canada and Great Britain.

The procedure or method used in approaching the problem was presented and in essence was as follows: (1) It was decided to use depth interviews. This because of practical reasons limited the sample to a rather small geographic location. Subjects were interviewed in New York City, Boston, and Washington, D. C. They were chosen on the basis of their availability to the interviewer, membership in the business or industrial division of the American Psychological Association, the recommendation by a member of the business or industrial

division concerning a member of the Association or a person in the employ of a member of the business or industrial division of the American Psychological Association. (2) A check list was devised to guide or structure, to some degree, the interview. Two revisions were made of the check list after the suggestions of two groups of prominent psychologists were obtained. A preliminary tryout of the check list was made and, to incorporate a few minor changes found to be necessary, a final revision was made. (3) The check list covered three areas of information, the first being background information concerning the subject's age, academic attainment and the fields of work in which he specialized. The second phase of the check list dealt with the kinds of work that occurred in the projects the subject works on. The third and final area covered the subject's evaluation of field and academic background with respect to his own line of work. (4) Data were collected from 65 psychologists who fit the above criteria. The data were analyzed from the points of view of the type of organization with which a man was affiliated, the types of work in which he specialized, and the age group which the subject was in. Following an analysis of data, a brief review of the respondent's opinions concerning field and academic experience was presented.

In conclusion, the results of this study indicate a rather wide variability between the several subgroups. This is shown both in the kinds of work done by the subgroups and in their

opinions concerning the qualifications necessary to enter their field of work.

Although there were differences between subgroups on some points, the psychologists in the business and industrial field agreed on the following qualifications for prospective entrants who expect to be able to do competent research work:

1. The master's degree in psychology is the minimum acceptable academic achievement to entering the field. Support for this statement is found in Table 5 where 84 per cent of the respondents agree as to its ranking of primary importance.

2. Some form of applied psychological experience should be given the student. This could be done as suggested by the respondents in the form of internships, or, as our English colleagues suggested, by actual practice in industrial plants under supervision.

3. The student should have some experience or knowledge of the functioning of a business or industry. This can be obtained easily by the student working in the summer either in a plant or preferably in an office where business is directed.

4. Elementary statistics and statistical inference are considered as imperative by the respondents. One needs only to recall how many of the respondents said they participated in statistical analysis to realize how important this skill was considered.

5. A good solid grounding in experimental psychology was considered as very important.

6. Industrial psychology and algebra should be in the course work covered by students in the industrial field.

7. Courses in the construction of tests and the uses and interpretation of group tests are rather important.

8. Students by all means should have training in expressing, both in writing and orally, technical material so that those not familiar with the terminology of the profession can understand. This is supported by both Uhrbrock (1937) and Canter (1948). It again should be pointed out that 44 per cent of the respondents independently suggested this kind of training, indicating their awareness of this need.

9. The student would do well to have some background in engineering, if only enough to understand the terminology of engineers.

10. Courses in the rationale of scientific method were considered of value by the respondents, thus supporting Uhrbrock's (1937) statement concerning the qualifications of industrial psychologists.

11. The respondents considered course work in business administration as valuable. This would tend to supplement knowledge gained by working in an office as mentioned above.

12. A course in market research might be of some value for men entering the general applied field. This view is supported by Darley and Berdie (1940) since they report that

industrial psychologists were concerned to some extent with market research. However, this view is not supported in the analysis of the kinds of work done by the respondents.

13. Finally, in reviewing the above conclusions, it would seem that, because of the high standings of statistics and mathematics, a student in industrial psychology could well afford to take a minor in that field.

ACKNOWLEDGMENTS

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Check List

Part I

In order that the results may be classified will you please check the following items:

1. Age 20-30 ___ 31-40 ___ 41-50 ___ 51- ___

2. Degrees — Date of degree
   a. B. S. or B. A. _____
   b. M. S. or M. A. _____
   c. Ph. D. _____

3. In general you would classify your work under which of the following fields of work. Check each of the following fields that is an important part of your work. This means only fields of work connected with Industrial Psychology. Not other fields in which you are competent.

Part II

Type of Work

1. Designing new equipment ___
2. Redesigning equipment ___
3. Designing flow charts ___
4. Attitude studies ___
5. Labor relations ___
6. Selection of client's employees ___
7. Market research ___
8. Counseling or interviewing employees ___
9. Testing ___
10. Job analysis ___
11. Selling your job to gain cooperation of management or employees ___
12. Statistical analysis ___
13. Writing reports of the study to the client or employer ___
14. Explanation of reports of the study to the client or employer ___
15. Contact work for new contracts ___

Part III

Part III is aimed at determining necessary qualifications and their relative importance to your field of work. Indicate your judgment on each item by checking the appropriate column. (Place yourself in the situation of a student who hopes to succeed moderately in Industrial Psychology. Knowing what you do today about the field, evaluate the following items.)

	Essential	Important	Some Value	No Value	Detrimental
1. Degrees					
a. B. S.	—	—	—	—	—
b. M. S. in Psychology	—	—	—	—	—
c. Ph. D. in Psychology	—	—	—	—	—
2. Psychological Experience (Applied)	—	—	—	—	—
3. Business or Industrial Experience (Non-psych.)	—	—	—	—	—
4. Experience in the industry of one's client or employer (non-psych.)	—	—	—	—	—
5. Teaching experience (Psych.)	—	—	—	—	—
6. Original Research in Psychology	—	—	—	—	—

Note: The items under question 7 refer to fields of work or study which might be classified under various course titles.

	Essential	Important	Some Value	No Value	Detrimental
7. Fields of study as background					
a. Elementary or Descriptive Statistics	—	—	—	—	—
b. Statistical Inference	—	—	—	—	—
c. Experimental Psychology	—	—	—	—	—
d. Group Testing (to include familiarization with group tests and the technique of administration of them)	—	—	—	—	—

	Essential	Important	Some Value	No Value	Detrimental
e. Individual Testing (to include familiarization with individual tests and the technique of administration of them)	—	—	—	—	—
f. Personnel Management	—	—	—	—	—
g. Principles and Techniques of Counseling	—	—	—	—	—
h. Abnormal Psychology	—	—	—	—	—
i. Psychology of Advertising & Selling	—	—	—	—	—
j. Social Psychology	—	—	—	—	—
k. Mental Hygiene	—	—	—	—	—
l. Industrial Psychology	—	—	—	—	—
m. Market Research and Measurement	—	—	—	—	—
n. Physiological Psychology	—	—	—	—	—
o. Algebra	—	—	—	—	—
p. Trigonometry	—	—	—	—	—
q. Analytical Geometry	—	—	—	—	—
r. Calculus	—	—	—	—	—
s. Labor Economics	—	—	—	—	—
t. Labor Management	—	—	—	—	—
u. Sociology	—	—	—	—	—
v. Human Physiology	—	—	—	—	—
w. Physics	—	—	—	—	—
x. Chemistry	—	—	—	—	—
y. Occupational Counseling & Guidance	—	—	—	—	—

Others