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ABSTRACT

This document presents the final report of a study of the best ways to serve persons with handicaps in preparation for work. Chapter 1 provides background and identification of research questions and the research hypothesis to be tested. It outlines major tasks of the study: (1) identify criteria used by training authorities to select the training setting for handicapped persons, (2) gain opinions of "impaired" workers as to where their job competencies were best developed, and (3) identify criteria which advocates presumed should be used when selecting training settings. The second chapter reviews literature addressing barriers that hinder the training of persons with handicaps, roles of persons with handicaps in contemporary society, and an in-depth discussion of the criteria assessed in this study. Chapter 3 is divided into five sections describing methods and procedures used in each of the three sub-studies (authority, worker, advocate), quality controls imposed, and statistical procedures. Chapter 4 reports findings that indicated that most of the revised criteria were considered to have been used or should have been used in selection of training settings. Chapter 5 provides summary, conclusions, and recommendations for future research. Appendixes, amounting to approximately one-half of the report, include the questionnaires and procedural guides. (YLB)

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FINAL REPORT

Identification and Validation of Criteria Used For Determining The Best Training Setting for Persons With Handicaps

by

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PREFACE

The laws and court decisions in the past decade have reflected a renewed national interest in expanding and improving educational opportunities for handicapped persons. Phase I of this study has found that educators, rehabilitation counselors, and hiring authorities of industry place importance on the development of the handicapped to be workers in our society and support the need for an urgent identification of a cost-effective training setting in which the handicapped person will learn the essential competencies for work. And, since most vocational training programs operated by schools and industries have the option to choose their training setting, it can naturally be presumed that the improper choice of this setting could prove costly, both in time and money, to both consumers and taxpayers. Therefore, it is surmised that the relative cost of training is usually the key criterion in determining the facility, personnel, resources, materials, and equipment for training handicapped people.

The major questions facing educators, rehabilitation counselors, and hiring authorities of industry, then, are how to choose among the available training settings and to determine the criteria that must be used to design more effective methods for training.

Admittedly, persons with handicaps are beginning to receive pre-vocational training, but the ways in which they should be trained remain relatively unexplored. If persons with handicaps are to receive vocational education training, a major question remains -- how should the choice of setting in which they learn skills for a vocation be determined?

The twenty-four criteria of Evans, Holter, and Stern (1976) which were used by schools and industries to decide which training setting to use for nonhandicapped people were revised during the pilot study for adaptation to the training of handicapped persons. These criteria, plus a new criterion, Evaluation, were incorporated into the survey instrument of the Phase I study to answer three principal questions:

1. What criteria are currently used for deciding if the handicapped are best taught a skill on-the-job or best taught in a school-like setting?

2. How do these criteria vary with type of handicap?

3. How should these criteria and the use of these criteria be modified to increase client competence and aid advancement throughout the continuum leading to employment and promotion for persons with handicaps?

The answers to these questions should markedly improve the efficiency of vocational education of handicapped persons and will have almost immediate impact on their competency development, since educators and hiring authorities of industry continue to grope for guidance as to the best ways to provide training for persons that are handicapped. These vocational competencies for which handicapped persons are to be trained may be ordered roughly from least to most complex. The pilot study (Phase I) supplied a strong inference that the most complex competencies were best taught in a classroom/laboratory setting while the least complex competencies appeared to be best learned through on-the-job training. Combinations of classroom/laboratory and on-the-job training were most common for tasks of intermediate complexity. From these generalizations it appears that task complexity is related to the choice

of training setting, but with all other criteria considered, cost appears to be a more direct determinant in deciding how and where a competency should be taught.

In the second phase the procedures used were:

1. Interview pre-vocational, vocational and on-the-job training personnel, e.g., sheltered workshop administrators, WECEP coordinators, CETA Part I and Part III coordinators of vocational education programs, educational directors of state institutions for persons that are handicapped, hiring authorities of handicapped people, vocational rehabilitation counselors and others who plan and conduct vocational education programs for handicapped persons, to determine which criteria were being used for choosing among existing training settings, for designing new settings for training and for determining entry to and exit from the training settings.

2. Identify which of the revised Evans et al. (1976) criteria are used and why they are preferred.

3. Identify additional criteria which are used in sub-paragraph 1 above, and why they are needed.

4. Interview handicapped workers who have been involved in on-the-job, classroom/laboratory, or a combination of the two training settings to determine if the Evans et al. (1976) criteria, as revised, were used when the training settings were chosen for their current vocations.

5. Use descriptive analysis to test the criteria and to identify and quantify the training methods used when job competencies were developed for the handicapped trainee. Next, also by frequency data, identify which criteria are said by training authorities and by workers to have been used.

6. Re-interview personnel in sub-paragraphs 1 and 4 above to validate their perception of the criteria.

The first chapter provides the background and statement of the problem and the identification of research questions and the research hypothesis to be tested. In the second chapter, the staff presents a review of the literature which addresses barriers that hinder the training of persons with handicaps, roles of persons with handicaps in contemporary society and an in-depth discussion of the criteria which were assessed in this study. The third chapter provides information about the design, method and procedures used. Chapter four reports the results, and chapter five provides the summary, conclusions and recommendations for future research.

This study begins to answer questions about how to best serve persons with handicaps in preparation for work. The data generated from this investigation have identified both the criteria and the training settings which have been preferred by the interviewed training authorities which could be the foundation for discovering the most effective method of vocational training for persons with handicaps. Vocational training has been construed broadly. Indeed, some vocational educators will feel that is has been construed too broadly. We believe, however, that the identification of effective training methods for the handicapped must not be limited in any way. Our principal regret is that the recent rulings which protect human subjects of research operated to reduce the range of handicaps and the range of job complexity which could be addressed by this study. We present recommendations for dealing with this problem in future research.

Rupert N. Evans

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CHAPTER I

INTRODUCTION

Background to the Problem

In the eleventh annual Gallup education survey of the attitudes and/or opinions of the American people toward their public schools, the Phi Delta Kappan reported:

> The public favors putting mentally handicapped children in special classes of their own. At the same time, people approve of putting physically handicapped children in the same classrooms with other children. (Gallup, 1979)

Advocates and benefactors of persons with handicaps are promoting a better understanding of the varied and numerous conditions of handicap and are slowly, but consistently, removing barriers to the socialization of handicapped persons in educational institutions and at the work place. In addition, Congress and the courts have mandated that recipients of federal dollars must make appropriate opportunities for employment and for an education available to handicapped persons.

For the handicapped person to receive equitable educational services, educators and employers alike must choose among the available training settings and/or design more effective methods of training.

Employers are concerned principally with the production of goods and services and need competent workers, that is, workers who can produce efficiently. Employers and vocational educators have a choice between teaching competencies on-the-job or in a classroom/laboratory setting or in a combination of these two settings. Small employers may not have enough turnover to justify operating classroom/laboratory instruction on their own, but employers of all sizes can purchase classroom/laboratory

if necessary. The choice of training setting by employers is influenced primarily by cost, both in time and money. Vocational educators have similar concerns, but their choice is influenced primarily by the availability of classroom/laboratory space or cooperative education placements in the community.

Historically, vocational competencies have been taught on-the-job or in a classroom/laboratory setting, but the trend in recent years has been to teach these competencies in classrooms and laboratories. This trend has brought about a vast expansion of school enrollments in vocational education (Wanat & Snell, 1980). The reasons for this trend are not clear. At the same time, many private industry groups believe that on-the-job training is less costly than classroom/laboratory training.

The recent mandates of Congress and the courts for training and placement of persons with handicaps has forced a major question upon vocational educators and employers: to develop vocational competencies for persons with handicaps, how should the training setting be selected or chosen for developing skills for work? Evans, Holter, and Stern (1976) identified twenty-four criteria being used by schools and employers to decide which training setting or method was best for developing job skills. Since the trainees in their study were not handicapped, it is not known whether these criteria are applicable to the training of persons with handicaps.

This study performed three major tasks. First, the study identifies the criteria which were used by training authorities to select the training setting for handicapped persons. Second, it has gained the opinions o "impaired" workers as to whether their job competencies were best developed

on-the-job or in a classroom/laboratory setting and to whether cited criteria were used when the training settings were chosen for their current vocations. And, third, advocates and interested professionals from outside the state of Illinois identified criteria which they presumed should be used when selecting the training settings for handicapped persons.

Statement of the Problem

In Phase I of this study it was determined that vocational competencies for which handicapped people can be trained may be divided into three categories: the most complex, the complex, and the least complex. There are distinct differences from one category to another in the adaptability of training to an on-the-job setting. Phase I supplied a strong inference that the most complex competencies were best satisfied in a classroom/laboratory setting and the complex were conducive to a combination of classroom/laboratory and on-the-job training. The least complex category appeared to be best satisfied in on-the-job training (Hunter, Menchetti, Holter, Moreau, Evans & Rusch, 1979).

Since most vocational training programs operated by schools and by industries have the option to choose their training setting, the wrong choice of "setting" could prove costly, both in time and money, to both consumers and taxpayers. From this generalization cost appears to be the most direct determinant in deciding to whom, how and where a competency should be taught, i.e., it is the key criterion in determining the trainee, facility, personnel, resources, materials, and equipment for training persons with handicaps. Educators, rehabilitation counselors, and industry's

hiring authorities use a number of criteria to make a prompt and accurate identification of a cost-effective training method in which the handicapped person will learn the essential competencies for work. However, the criteria used in these decision-making processes are based on the views and beliefs of counselors, trainers, administrators and employers. If handicapped persons who are endeavoring to learn essential competencies for work were asked to identify the criteria that are used (or should be used) when selecting their training settings, would the identified criteria be identical to those chosen by cited authorities, or different? This unanswered question may be the crux of the problem.

At present the selection processes in choosing a training setting for the handicapped trainee are based primarily on views and beliefs of a nonhandicapped authority. Consequently, it is conceivable that these nonhandicapped authorities may assume restrictions based on false relationships between the type and condition of handicap and the setting for training. Hence, this assumption may become the determinant for rejection for a particular type of training setting and subsequently from a chosen place of employment.

Need for the Study

Employment of persons with handicaps must be viewed over time by the public and employers alike as a means of assisting those who are handicapped to become self-sufficient. This should also be looked upon as providing a great potential for an economic boost to the economy. The literature reports job discrimination and similar barriers erected by employers and educators who have closed their minds to the possibility

of hiring or training the handicapped person (Brolin, 1976; Gardner & Warren, 1978). Without training or an appropriate education "dependent" handicapped persons must turn to the public for aid.

After reviewing the literature and interviewing educators, employers, and advocates of persons with handicaps, it was apparent that the prejudices and discriminatory practices toward the handicapped members of our society are based mostly upon misconceptions, ignorance, and fears which have been passed on for centuries in the American social system. The Congress and courts are attempting to insure basic humanistic action which will keep members of society from being relegated to slave labor, secondary citizen status, or despair even though it often has been argued that values and feelings can never be truly legislated.

The handicapped person must be recognized as a "person." Each of them has a need to understand and be aware of her or his impairment(s). They must be aware that they are different and what the implications of these differences will mean. Once aware of these differences they will be capable of making major decisions regarding their condition of handicap and choice of occupation. This decision-making about one's self is an essential part of a handicapped person's adjustment to the real world (Buscaglia, 1975). Therefore, the investigators sought to gain expert opinions from both "advocate" training authorities (counselors, administrators, trainers and employers) and "impaired" workers (who were handicapped) on how best to determine the criteria and choose among the available training settings to effectively train persons with handicaps.

Research Questions

To guide the research in this study, answers to the following questions were obtained.

For the training authorities study.

1. What criteria are currently used for deciding if the handicapped are best taught a skill on-the-job or best taught in in a school-like setting?
2. How do these criteria vary with type of handicap?
3. How should these criteria and their use be modified to increase client competence?

For the workers study.

1. What criteria do handicapped workers report were used for deciding the training setting for development of their job competency?
2. How do these criteria vary with the level of complexity of training?
3. How do these criteria vary with the job for which trained?
4. What modifications to these criteria are recommended and why?
5. Which method of training do handicapped workers feel had the greatest positive influence upon individual placement or opportunities for advancement?

Research Hypothesis

There were two research hypotheses tested in this study.

1. To develop job competencies for persons with handicaps, the training settings which authorities choose most frequently will be a

combination of training settings, e.g., classroom/laboratory instruction succeeded by on-the-job training or in conjunction with on-the-job training.

2. Persons with handicaps who have attained tenure and are in prime jobs, i.e., jobs which lead to promotion and career progression, will report that they received their training in a combination of training settings.

Assumptions

1. There is a constant relationship between the number of instructors and the number of trainees in any given training setting.
2. Most handicapped persons do not have equitable training opportunities.
3. The handicapped person, when suitably trained, can contribute as much to the employer as a nonhandicapped person.
4. The placement of the handicapped trainee in suitable training settings will be contingent upon the decisions of authorities other than the trainee concerned.
5. The responses by the respondents to the questions of the interviewers are accurate and valid.

Limitations of the Study

There were three limitations to this study.

1. The study used small populations which permitted only limited tests of operational, statistical and analytical procedures.
2. The study was limited to the identification of criteria that were

used for placement of the respondents or used by the respondents for placements and should not be generalized to the entire state of Illinois or to all the institutions or agencies who train persons with handicaps in vocational competencies.

3. Access to personally identifiable data was prevented by the Family Educational Rights and Privacy Act.

Definitions

A handicapped person is any person with a physical or cognitive disability which results in a substantial handicap to employment or training but who can reasonably be expected to benefit in terms of employability from vocational rehabilitation servies (PL 93-112).

An "impaired" worker is any person with a physical or cognitve deficit which does not restrict them from employment or training.

Classroom or laboratory instruction (CL) is formal training in the traditional or conventional school setting in which the instructor and student regularly meet at a specific time and place for the primary purpose of teaching and learning.

Home training is "kinship" training which occurs in a setting permeated with cultural biases and values where attitudes are formulated and basic social skills are normally learned and practiced.

On-the-job training (OJT) is an all inclusive term that encompasses all self-study knowledge and job experience acquired by trainees while working at their assigned jobs.

Combination training (COMB) is classroom/laboratory instruction succeeded by on-the-job training or in conjunction with on-the-job training.

Training authority is any person educator, rehabilitation counselor, employer (or employer representative) who participates in the selection of the training setting for persons with handicaps.

CHAPTER II

REVIEW OF THE LITERATURE

Considering the amount of recent literature which has been published on people and their handicaps, it would seem that a considerable amount of knowledge would exist on the process of selection of a training setting for handicapped members of our society. From a search of the literature this apparently is not the case. Certain literature has provided important and useful information, but none has provided conclusive information about how one chooses among the available training settings to train a handicapped person effectively.

The review of the literature will be given in three parts. First, it will identify the principal barriers that hinder the vocational training of handicapped persons. Second, it will review the role of persons with handicaps in contemporary society and the factors that warrant their participation in vocational training which would lead to placement in the Nation's work force. Third, it will review twenty-seven decision-making criteria identified by this study and suggest how these criteria may be used as a tool in a process of choosing the best vocational training mode for a handicapped person.

Barriers Hindering the Vocational Training of Handicapped Persons

> A major problem of [a] democratic society is inconsistency between encouragment to achieve and the realities of limited opportunity. Democracy asks individuals to act as if social mobility were universally possible; status is to be won by individual effort, and rewards are to accrue to those who try. (Clark, 1960, p. 569)

Although the author of this citation was addressing a different issue, the words and meanings address the hopes and dreams of millions of handicapped youth and adults who seek training for work which is commensurate with their abilities and interests.

Generally, the legal system of the United States evolved with the intent of supporting these dreams, but the multicultural and complex moral and social traditions that predated the American Revolution stressed self-sufficiency and independence for all, rather than aiding the handicapped to achieve mobility. These traditions became the pillars of the American legal system which promoted the historical exclusion of handicapped people from the Nation's social system (Bowe, 1978). However, the decades of the 1960's and 1970's brought a wave of federal and state legislative rapprochements toward the handicapped members of the nation, although many of these laws had no enforcement provisions. For example: House Bill 2416, January 1968, State of Illinois, was concerned with the removal of architectural barriers from public buildings and publicly used, privately owned buildings to make them useable by the handicapped. But there were no penalties for failure to comply. More recent legislative acts tend to have stronger provisions. For example, the Community Mental Health Centers Act of 1973 (PL 88-164) directed the return to appropriate local settings of all institutionalized residents who were prepared to function adequately, after participation in programs of rehabilitation and training, and the Rehabilitation Act of 1973 (PL 93-112) had the following definition:

> Section 103. (a) Vocational rehabilitation services provided under this Act are any goods or services necessary to render a handicapped individual employable ...

These and similar laws, coupled with the federal rules and regulations which were promoted by the Adams v. Califano case, will provide the handicapped trainee important weapons in seeking redress against discrimination in employment as well as in vocational training (National, 1979).

> Part 80, Section VI, A. Accommodations for Handicapped Students. Recipients [of Federal financial assistance] must place secondary level handicapped students in the regular educational environment of any vocational education program to the maximum extent appropriate to the needs of the student unless it can be demonstrated that the education of the handicapped person in the regular environment with the use of supplementary aids and services cannot be achieved satisfactorily . . . If a separate class or facility is identifiable as being for handicapped persons, the facility, the programs, and the services must be comparable to the facilities, programs, and services offered to nonhandicapped students. [Federal Register, March 21, 1979, 44, (56), p. 17167]

However, a United States Supreme Court decision appeared to support the exclusion of a person with an auditory handicap from a vocational training program (Southeastern Community College v. Davis) (Kaimowitz, 1979). This decision allegedly was concerned with the cost of training delivery methods, i.e., ". . . the Court stated that in this case the college did not have to make accommodations to enable Ms. Davis to participate [in the clinical training] . . ." (Hull, 1979, p. 173). Hull points out that it is rather difficult to understand the implication that the requirement for a "reasonable accommodation" may be tied to some form of Congressional funding which means the enforcement of Section 504 of the Rehabilitation Act (PL 93-112) is tied to fiscal policies. This would mean that the aspirations of a handicapped trainee to choose a vocation would be dependent upon the severity of the handicap as well as the annual budget of the responsible federal/state government agency. In addition, the civil rights of that trainee might have to await Congressional funding.

Exclusion of Persons with Handicaps from Vocational Training

One popular justification for exclusion of persons with handicaps from training programs which lead to some form of vocational placement in the work force has been centered on the belief that employers would not hire handicapped graduates of these programs, sowhy waste the classroom/ laboratory or cooperative program spaces on them? Theoretically, the refutation of this barrier lies in three pieces of legislation. First, Public Law 94-142, The Education for All Handicapped Children Act of 1975, is the civil rights legislation for the school setting. It provides for the desegregation of handicapped youth in the school and assures them of an educational opportunity in the "mainstream" of the school's social system.

> Section 3. "(c) It is the purpose of this Act to assure that all handicapped children have available to them . . . a free appropriate public education which emphasizes special education and related services designed to meet their unique needs, to assure that the rights of handicapped children and their parents or guardians are protected, to assist States and localities to provide for the education of all handicapped children, and to assess and assure the effectiveness of efforts to educate handicapped children." (PL 94-142, 1975)

Second, Public Law 93-112, The Rehabilitation Act of 1973, is considered to be the civil rights legislation which applies both to training and work settings for those handicapped members of the community who have elected to leave the "traditional" educational system or are handicapped adults who are eligible under existing laws.

> Section 302. (b) (2) (A) Vocational training services . . . shall include training with a view toward career advancement; training in occupational skills; related services; including work evaluation, work testing, provisions of occupational tools and equipment required by the individual to engage in such training, and job tryouts; and payment of weekly allowances to individuals receiving such training and related services. (PL 93-112, 1975)

This citation from Title III, Special Federal Responsibilities, assures the appropriation of funds to support vocational training services for handicapped individuals. In addition, the civil rights of persons with handicaps are protected at the work place by Section 503 when Federal contracts in excess of $2,500 are negotiated. Also, the rights of these individuals are protected when Federal financial assistance is granted. "Section 504. No . . . qualified handicapped individual in the United States . . . shall, solely by reason of his [/her] handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance" (PL 93-112, 1975).

Third, Title II, PL 94-842 of 1976, Vocational Education, amended the purpose of the Vocational Education Act of 1963 to read:

> "Section 101. It is ... the purpose of this part to authorize Federal grants to States to assist them . . . so that persons of all ages in all communities of the State . . . with special educational handicaps . . . will have ready access to vocational training or retraining which is of high quality, which is realistic in the light of actual or anticipated opportunities for gainful employment, and which is suited to their needs, interests, and ability to benefit from such training . . ." [PL 94-842, Section 202, (a)]

Although these laws and their rules and regulations are currently in effect, the demonstrated concerns of vocational and even of special educators for resolving training and employment problems for persons with handicaps are reported to be less than adequate because many of the educators who lead or teach students in these programs have given only a limited amount of support to the occupational training of persons with handicaps (Howard, 1979 and Savage, 1978).

The Role of Persons with Handicaps in Contemporary Society

As the casualties of the first World War returned home during the period of 1914-1918, it became apparent to America that it had to provide the handicapped veterans appropriate compensation for their services. In June of 1918, the Smith-Sears Vocational Rehabiliation Act was enacted. This Act was the first Federal demonstration of social consciousness for persons with handicaps. It provided for both vocational training and job placement for handicapped veterans (Bowe, 1978).

Since the enactment of the Smith-Sears Act, there have been a number of similar laws of record, such as those cited as Public Laws 93-112 and 94-482 (Title II), but with apparent minimal influence upon the preparation and placement of persons with handicaps in role-appropriate positions in the work force. One example can be drawn from a study by Gold (1972), who identified an important discrepancy between the expected performance and actual performance of a group of sheltered workshop, cognitively impaired persons. The moderately and severely cognitively impaired subjects in this study were to be involved in a twenty-five step assembling training task. Fifteen of these tasks were manipulative (moving parts into place) and ten were discriminative (each subject was required to determine which way a part was to be placed). In addition, the subjects were required to perform thirty-three steps involved in assembling the transfer task, twenty-three of which were manipulative and ten were discriminative. When apprised of the training task, the expectancies of the workshop directors were pessimistic. They said their most able clients would be incapable of learning the tasks portrayed. Gold explains that the reason for the pessimism is that "they do little in the way of cognitive and skill development

. . . because they do not have the necessary training to do so" (p. 524). Of the fifty-three subjects who participated in the study the lowest performing group exceeded the expectancies of the workshop personnel, and it is apparent that the workshop personnel in this study had not effectively assessed the trainees to determine their potential role for work.

A second example was reported by Moed and Litwin (1963) in Urban and Tsuji (1974), The Special Needs Student in Vocational Education. This study reported the vocational potential of cerebral palsied young adults.

> The Work Evaluation Project included 286 ambulatory clients given a 7-week vocational evaluation at ICD [the Institute for the Crippled and Disabled in New York City]; 68 percent were estimated to be employable in competitive industry. Of these estimated as employable 66 percent found employment in unskilled and clerical areas during the 5-year period of a vocational study . . . The employable group was not significantly better than the group capable of only sheltered workshop activities as to severity of physical disability, e.g. motor involvement, vision, and hearing. However, the employable group had better speech, gait, and ability to travel in spite of similar motor involvement. (pp. 223-224)

A third and fourth example are reported by Brolin and Kolstoe (1978). Writing about selected studies on how well adult people with handicaps fare in given stages of their lives, Brolin et al. believe the following longitudinal studies provide greater insight into the life roles of handicapped people.

> In Illinois, a follow-up study of 464 deaf students who had been educated in four different types of programs was conducted (Quigley et al., 1969). The educational settings were residential, day schools in Chicago, day schools in other parts of Illinois, and public school classes for the general population. No differeneces were found across groups in wages and job satisfaction for similar jobs. However, the residential groups reported lower hearing ability and generally lower socioeconomic levels. Nonresidential persons were employed in more professional, technical, and clerical jobs. They placed a greater value on oral communication skills relative to job performance and had more social and marital involvement with hearing people. (p. 19)

These studies identify a sampling of social successes and failures experienced by persons with handicaps. The cost-benefits to society brought about by the successful "subjects" are not fully apparent until the following statistics are considered.

In the 1978-79 fiscal year (October 1, 1978 to September 30, 1979) the estimated numbers of persons with various handicaps in the State of Illinois receiving aid, in some form, from the Department of Rehabilitation Services (DORS) is reported in Table 1.

Table 1

Clients Served by The Department of Rehabilitation Services. FY 79

Handicap	Clients		
	Total	= Institutional +	Non-Institutional
Physical	26612	1713	24881
Cognitive	13401	2796	10605
Visual	3895	454	3441
Auditory	3419	312	3107
Emotional	16353	3099	13254
Other	811	811	-----
Total	64491	9203	55288

The services to these clients for vocational rehabilitation exceeded fifty-three million dollars, which came, primarily, from federal and state revenues. Were these costs beneficial to society?

In training programs, cost is a crucial criterion when considering which method of training to use; and training persons with handicaps will not be an inexpensive investment. However, if one were to measure over a life-time of seventy years, the dollars spent in welfare, institutional and similar cost for one handicapped person, it is doubtful that the non-handicapped members of our society would continue to sanction the costs of client services as reported by DORS or to sanction the exclusion of persons with handicaps from a participatory role in the workforce, to include the paying of taxes.

The real significance of this problem is apparent when a national head-count of this population is considered. Halloran (1978) reported:

1. One of every ten Americans under age 21 is identified as being handicapped.
2. One of every eleven adult Americans is identified as being handicapped.
3. Perhaps nineteen percent of the population is handicapped.

If these statistics are valid, the investment in training programs for persons with handicaps, could, over time, develop skilled workers for deployment into new job functions created as a result of technological advancements. But, it is suspected that the major initial issue of contention will be the selection of the most cost-effective method of training.

Decision-Making Criteria Used in the Selection of the Training Setting

Passmore, Marron, and Van Ginkel (1978) listed a number of questions which may be of concern to an employer (industrial firm), but these are also the concerns of the handicapped trainees, the special and vocational educators, the rehabilitation and educational counselors, and the community, when deciding upon training investments.

[1.] Should training take place on the job? Through informal or formal means?

[2.] If training is conducted off the job, who should deliver it? Public education? The firm employer? A proprietary school? An equipment manufacturer?

[3.] Should laboratory, classroom, or home study experiences dominate the delivery of instruction?

[4.] How long should a training program last?

[5.] Should theoretical rather than practical matters be taught? By whom? By experienced workers or by professional training specialists? (p. 74)

This study reports the identity of criteria which are used when selecting the training setting for handicapped persons and approaches answering these same questions.

The essential elements for preparing all persons to perform effectively in life, whether on or off the job, continues to elude the educational and industrial planners of instruction. In the literature some authors give powerful, impressive reports in an attempt to change the educational thinking of the masses who are avid readers of their professional journals, but as Gage (1978) writes in his analysis of research on teachers: "The kind of research I have been describing is a plodding enterprise, the reports of which are seldom, I regret to say, as well written as the pronouncements of authors unburdened by scientific method. But, in the long run, the improvement of teaching . . . will come in large part from the continued search for a scientific basis for the art of teaching" (p. 235).

The idea for developing successful delivery systems in vocational education programs has been under constant revision since the enactment of Public Law 64-347, The Smith-Hughes Act of 1917. Researchers in this field continue to do investigative and developmental work to improve vocational education and

especially "to make curricula flexible, to develop new programs in career education, and to compare the effectiveness of various modes of instruction" (Committee on Vocational Education R & D, 1976, p. 9).

In this study twenty-seven criteria have been identified to enable managers and developers of vocational programs to assess more effectively the options of providing instruction on-the-job or in a classroom/laboratory setting for persons with handicaps. These criteria are believed to provide a means to measure the advantages and disadvantages of each mode (method) of instruction. Now, the arguments, pro and con, as to which method is the most effective and relevant to the trainee are potentially answerable. The twenty-seven criteria identified are listed alphabetically and numerically below with definitions and literature descriptions of each:

1. Abilities and Aptitudes - demonstrated performance of the trainee in both physical and mental skills, and the measured talent of the trainee to learn and/or understand specified skills in a short period of time.

The method of training used for developing occupational skills has often been determined by the abilities and aptitudes of the trainees. Evans et al. (1976) stated that, "If trainees have above average manipulative skills, less practice time may be required in the laboratory" (p. 33). This may indicate that the lower the ability and aptitude of the trainee the more likely the trainee will spend her/his learning time in the classroom/laboratory setting. However, the "bottom-line", according to Rubin and Roessler (1978), is that the employability of the handicapped trainee is determined by her/his ability to acquire skills and experiences in either classroom/laboratory or on-the-job training settings.

2. Availability and Suitability of Physical Resources - obtainable training equipment and facilities for persons with handicaps to promote conditions which are identical to those the trainee will encounter on the job.

Regardless of the method of training selected in developing technical skills for persons with handicaps, most trainers believe that trainees ideally should acquire new skills under conditions and with equipment which are identical to those they will encounter on-the-job. This will allow the trainees to practice the actual behaviors they are expected to exhibit upon completion of the training program. Real life job conditions should increase the immediate training effectiveness because there is no need for transfer of training. Presumably, this is particularly important for those with cognitive handicaps, and may be important for those with other handicaps (e.g., a visually handicapped person not needing to get the "feel" of a new machine). It may happen, however, that training which does not emphasize transfer of training is less effective for workers who have to change jobs frequently, and it is believed that complex tasks may require modification of equipment for instructional purposes (e.g., cut-away engines, moch-ups, and simplified systems). However, Dahl, Appleby, and Lipe (1978) cautions: " . . . if modifications are terribly complicated, very expensive, or can only be done in a way that makes it more difficult for a nonhandicapped student to learn to use the equipment in the usual fashion [then this strategy is disadvantageous]" (p. 184), when one considers "mainstreaming" in a classroom/laboratory setting. In addition it should be pointed out that the use of actual job conditions is not always feasible in on-the-job training. For example, if an actual assembly line or other production facility were used for training, operating personnel might be

unable to produce during that time. Therefore, this criterion, which appears to be a good indicator of the effectiveness of instruction, must continually be measured.

3. Capability - ability of a training activity to conduct training for persons with handicaps without degrading the quality of the trainee's post-training job performance.

In this study it was assumed that there was a relatively constant relationship between the number of instructors and the number of trainees in a given training environment. The capability to conduct training, therefore, was assumed to be linear with respect to the number of available qualified instructors. However, it was recognized that the student/instructor ratio in on-the-job training settings was usually markedly lower than for classroom/laboratory and that staffing at the work site did not always increase with the on-the-job training load.

4. Complexity - the number of principles, procedural sequences and motor skills required of the trainee to perform tasks and master requisite skills for the job.

There are two major components to learning difficulty: difficulty of the task and difficulty of learning due to trainee characteristics (Evans, et al. 1976). Complex tasks are usually more difficult to learn because it may be necessary to learn principles and procedural sequences while developing motor skills. And, if trainees have characteristics which are different because of their handicaps from those the instructor is accustomed to teaching, they may need different lengths of time to be taught and to learn a skill.

5. Cost - the amount of money, time, work, etc. expended to provide the facilities, personnel, resources, materials, equipment, transportation, prosthesis, etc. to train persons with handicaps.

Cost is a key criterion in determining how and where a skill should be taught. Most other criteria have an impact on costs of instruction and all criteria affect total costs (Evans et al., 1976). The facilities, personnel, resources, materials, equipment, and quality of graduates are usually correlated positively with the cost of the training program. Cost is therefore important when considering the advantages and/or disadvantages of bringing the trainee to the classroom or the instruction to the trainee at work or a mix of the two modes of instruction (McNelly & Kazanas, 1975; Samers, Dunham & Nordhauser, 1974).

The cost of training one handicapped person to a known skill level in the classroom/laboratory environment was usually accessible from the records maintained by the school fiscal officer. Cost factors such as student time, instructor time, administrator time, and cost of equipment and materials are necessary data collected in the day-to-day operation of most educational institutions. In Phase I of this study the cost of classroom/laboratory instruction appeared to be greater than the cost of on-the-job training or a combination of training settings.

6. Criticality - the ability of the trained worker to execute the essential skills to combat high risk conditions on the job.

The method of training best suited for teaching critical, complex tasks to handicapped trainees should be given serious consideration by the decision makers in the development of training programs. The consequences of inadequate performances is an important criterion in selecting course content and the instructional setting. Tasks that involve high risk to personnel, equipment, and/or facilities need to be evaluated to determine how much emphasis and which training medium best develops the required skill. For example, if a task must be accomplished in an emergency, the completion of the job usually

cannot wait until the worker locates the proper section in the technical manual or asks the supervisor for critical information. Consequences of the task delay may, therefore, contribute to criticality.

7. Disabilities - effect of the trainee's handicapping condition upon the choice of training settings and the complexity of skills to be learned.

Disability, as related to work has two dimensions: "the presence or perception of physical or mental handicaps and a reduced work capacity" (Levitan & Taggart, 1977). The perception of disability leads employers and teachers to believe that a greater length of time will be required to bring a disabled trainee, whether mental or physical, to the desired level of competency. As described by Evans et al. (1976), the Disabilities criterion stresses aptitudes and abilities of the mentally and/or physically handicapped and the special needs required to bring them to competence. Therefore, for most purposes the Disabilities criterion and the Abilities and Aptitudes criterion have considerable similarity.

8. Evaluation - appraisal of the quality of training received by the trained worker during her/his training program.

The twenty-four criteria identified by Evans et al. (1976) as having an important bearing on whether a competency should be taught on-the-job or by classroom/laboratory instruction or both included one criterion related to the "Performance of Graduates." The objective of this criterion was to investigate beliefs about the capability of the graduate after completion of the training program. The criterion did not address the appraisal of the quality of training during the course of instruction. To analyze this aspect of the curriculum, a twenty-fifth criterion "Evaluation" was added to the list for testing. Foster, Szoke, Kapisovsky and Kriger (1977) contend that evaluation should take place in both the classroom/laboratory

setting and in the on-the-job setting when appraising the quality of training received by former handicapped workers. Therefore, data should be collected to determine whether graduates meet the qualitative requirements of the job for which they are being trained.

9. Frequency - the extent to which the tasks that most workers perform at a given skill level on-the-job are repetitive.

The structure of a training program for handicapped students should begin with a description of the tasks the entrant will be expected to perform. Tasks that are performed frequently by most job incumbents at a given skill level are prime candidates for inclusion in classroom/laboratory training programs (Carpenter, 1970). Conversely, tasks that are performed by few workers, or infrequently, should be considered for elimination from classroom/laboratory instruction and taught on-the-job, or not taught at all. If the probability of any one worker having to perform a task is very low, it is likely to be more efficient to train on-the-job only those trainees who must perform the task (Jenness, 1976).

10. History and Pragmatism - factors such as the results of research or personal experiences, that influence the decisions of training authorities to teach a competence on-the-job or in a classroom/laboratory setting.

Educators and employers are prone to use their experiences when deciding whether to teach a competency on-the-job, in a classroom/laboratory or in a combination of the two settings. If the choice doesn't work well, a decision is often made to make a change. However, there is a need for empirical data when planning methods of instruction (Johnson, 1976).

11. Instrumentality - generic skills in mathematics (read, write and count) and communications (literal comprehension in reading and fluency and idea organization in writing and speaking) that are essential in learning competencies for the job.

Skills in reading, computing, and communication are instrumental to learning most occupational skills, and many daily living skills are essential for the care of one's everyday affairs, but may be difficult to teach on the job. In Phase I of this study, educators and employers of persons with handicaps indicated that if the job tasks required knowledge in reading, computing, or communication, these skills were best acquired through classroom/laboratory instruction.

12. Need to Minimize Training Time - the demand for workers in a given occupation which dictates a reduction in the amount of trainee preparation time to gain knowledge and abilities for satisfactory job performance.

When the demand for trained personnel far exceeds the supply, there may be a particular need to minimize training time. Under such a condition, trained personnel are needed quickly and often are pushed through training as rapidly as possible. The complexity of the skill may, however, affect the time required for training. Therefore, the need to minimize training time for persons with handicaps may be at odds with the individual's ability to develop the skill.

13. Number of Personnel to be Trained - the trainee space in the classroom/laboratory or on-the-job, that may be occupied at any given time and will not adversely affect trainee and instructor time, use of equipment, materials, and facilities.

There is usually a high correlation between instructor requirements, equipment requirements, facilities requirements and the size of the flow of trainees through a course of instruction. These elements affect and have an impact on the ability of a training activity to maintain the necessary level of productivity. To serve persons with certain types of handicaps there will be a greater investment for the first trainee (as compared with subsuquent trainees) in order to allow trainee access to the

training either on-the-job or in a classroom/laboratory. For example: the investment in transportation may be higher for the first cooperative education student but will be lower per student as the number of students increase or become involved in the program.

14. Passage of Time - the loss of knowledge and/or skill proficiency caused by the time interval between the completion of training and the initial performance on-the-job.

The time interval between completion of training for a competency and the initial performance at work may have an impact on the qualitative requirements of the job. A loss of proficiency could result if the time interval is great, and therefore, the loss of knowledge and/or skill would directly affect job efficiency.

15. Performance of Graduates - the comparative evaluation of workers' performance, based on their mode of training, to ascertain the best setting for specified skills to be developed.

When determining the method of training to be used for the development of a skill, the capability of the graduate should be compared in terms of performance. Technique-comparison studies on this subject abound in training literature. The performance of on-the-job training and technical school classroom/laboratory graduates was compared in an Air Force Human Resources Laboratory (AFHRL) investigation (Dunham, 1972). That study, based on an analysis of assessed knowledge for both classroom/laboratory and on-the-job graduates of a specific skill, found essentially no significant differences for the two types of graduates. In another AFHRL investigation (Lecznon, 1972) the performance of on-the-job and technical school classroom/laboratory graduates was compared in terms of six criteria: a job difficulty index, average task difficulty, number of

tasks performed, job interest, self-utilization of talent and training, and overall performance ratings. Again, no advantage of classroom/laboratory over on-the-job training was found.

16. Persistence of Demand for Trained Personnel - the influence of long-term job market requirements for trained workers in a specified occupation.

A long-term job requirement for trained workers, including impaired workers, may influence the use of one training approach over another. For example, when trainees are available over an extended period of time, program developers may justify the acquisition of facilities, equipment, and staff to support the implementation of classroom/laboratory courses. Conversely, as stated by Evans et al. (1976), if a job classification is going to be phased out, or a product is going to be discontinued so that new entrants for an occupation will be needed for only a year or two, the construction of facilities and the development of curricula for residential or other formal training may be impractical. The requirement for trained personnel may, in those situations, be satisfied better through on-the-job training.

17. Philosophy and Policy - the basic values, concepts, and systematic efforts that are formulated from experiences, hearsay, and/or research, that are used by industries and schools to clarify and coordinate their beliefs and that are eventually integrated into the "official" practices of the institutions concerned.

Traditionally the choice of an instructional methodology has been determined primarily by philosophical beliefs, past experiences, fads of the times, or frequently "because it seemed to work" (O'Toole, 1976). The decision for selecting one type of instruction in preference to another has usually been based on the judgment of the administrators or curriculum developers who have relied frequently on past experiences

for determining which method should be used at the time the course is developed. Empirical data based on research rarely have been used in making these decisions (Singer, 1977).

18. Ports of Entry - the effect of local, state, or federal licensing agencies upon the pre-job entry training of workers.

Some occupations have union, state, or Federal entry requirements. These requirements may demand licensure, membership into unions and/or academic degrees. The requisite competencies to meet entry requirements should be included in the training programs for persons with handicaps (Dahl et al., 1978).

19. Preferred Learning Modes - the training setting which is most preferred by the trainee to learn skills of the job.

Vocational counselors are often faced with a dilemma of giving the handicapped individual guidance on how she/he should and can be trained regardless of the trainee's preference of training method. The preferred training method by the trainee may not be the most applicable to her/his needs or may not even be available. For some individuals, career satisfaction is related to being able to work and learn on-the-job (Evans et al., 1976). Other individuals feel more satisfied when learning in a classroom/laboratory setting. And for others, both types of training settings may provide learning satisfaction.

20. Prior Experience - the individual skills and knowledge acquired from previous training or work which are potentially transferable to the "new" behavior to be learned.

The prior experience criterion is often difficult to assess accurately because many training settings are so structured that little or no assessment is made of skills and knowledge acquired from previous courses or work experiences. In many training activities the primary concern is

that trainees learn the necessary job behaviors by completion of the previously planned instruction and that the technical skills to be mastered include work habit skills (Dahl et al., 1978).

21. Quality Control - the degree of excellence in post-training job performance which is attributable to the type of training received.

If considerable time is required before a worker can learn to produce work of acceptable quality, on-the-job training may not be feasible for initial instruction (Evans et al., 1976). However, based on the results obtained in Phase I of this study there appears to be a high degree of probability that the handicapped trainee can learn to produce work of acceptable quality in a reasonable period of time regardless of the method used for developing job skills.

22. Reality of Atmosphere - the training setting where realism can best be created to be most like the work place.

Training conducted in an atmosphere that closely resembles or is identical to that in a work environment should enhance the learning ability and the attitude of the handicapped trainee. Reality of atmosphere tends to reinforce the learning of job skills. In many training situations, however, it is difficult to duplicate some aspects of the job. An atmosphere of realism should receive serious consideration in the development of training programs for persons with handicaps.

23. Screening Device - the use of training as an assessment strategy to identify, train, hire, and/or promote persons with handicaps.

Assessment or screening measures are normally used in determining what types of modifications are needed in training programs to meet the needs of handicapped persons (Dahl et al., 1978). In addition, these measures

are used to assist in the identification of personnel to be trained, hired and/or promoted, or they may be desirable for the identification of the development of a competency.

24. Solicitude - acts of pity or encouraged "dependency" which affect the social interactions of handicapped and nonhandicapped persons in both the training and work settings.

Foster et al. (1977) purport that persons with handicaps will always have a need for some form of dependency throughout life, and interested others should assist these individuals to achieve a realistic view of how dependent they should be. The authors caution, however, that some trainees with handicaps may use their handicap to avoid developing their full potential, and may tend to develop attitudes of low self-esteem, lack of self-confidence and fear of failure.

25. State of the Business Cycle - the extent to which the economy is able to support full employment for all those desiring work (Levitan & Taggart, 1977).

The state of the business cycle refers to the extent to which the economy is able to support full employment for all those desiring work (Levitan et al., 1977). Handicapped workers are placed in a particularly difficult competition with non-handicapped workers for both training and jobs when the economy is depressed.

When the demand for labor is low the interest and incentive to provide jobs and training may diminish on the part of both employers and educators. The extent to which the state of the business cycle influences training appears to depend, to a large extent, upon the duration and the depth of the economic downturn. In any event, the state of the business cycle, whether up or down, probably affects the choice and selection of the training method used for training persons with handicaps.

26. Uniformity - the extent to which all trainees should accomplish like tasks in a similar manner.

Standardization of training is a criterion that should be considered by curriculum developers when selecting the method of training. On-the-job training generally represents decentralized control of training. Because of varying missions, equipment and procedures, on-the-job training may vary from trainee to trainee and from shop to shop. Classroom/laboratory training may, on the other hand, have more centralized control over the instructional program. Students attending a formal resident course may be required to learn a broad variety of types of tasks they may need to perform in the labor market, and all will have experienced like kinds of training upon graduation. Such standardizations of training may provide for greater mobility of the graduates because they may be able to do the job in the same fashion from one work station to another. On the other hand, classroom/laboratory training which is provided by many different local education agencies (LEA) may differ almost as much from one LEA to another as from one on-the-job training site to another. Much depends on the extent to which teachers have received identical teacher training, the usage of common instructional materials, and the use of external tests (e.g., state licensure examinations).

27. Social Cohesiveness/Work Adjustment - the accepted tone of social interaction within the training and/or work environments which affects the success of training and the production of goods and/or services. (Note: This criterion was identified during the "critique" of the study.)

Classroom/laboratory and/or on-the-job training settings are significantly affected by the tone of social interaction among the three principal members of those settings: (1) trainer vs. trainee, (2) peer group vs.

trainee and (3) trainer vs. peer group. A cohesive group in a learning setting is composed of members who work together for a common interest and are willing to participate in group tasks and experiences that normally include the anxieties and frustrations which accompany knowledge processing in human skill development (Stancato, 1979). When training handicapped students for a vocation, the training setting has been complicated by the training authority's lack of knowledge about how best to develop the learning environment to create the most effective climate for instruction and learning (Bottoms & Scott, 1976). Therefore, training authorities should be aware of the noncohesive potentialities of the "alien" training setting that is conceived and populated primarily by the nonhandicapped with their own (nonhandicapped) values and mores for the training of persons with handicaps (Weisman, 1976).

Summary

Federal legislative actions during the seventies have made substantial changes which should improve the status of many handicapped youth and adults who seek training and work. It is now a matter of record that the handicapped trainee and the impaired worker have the essential tools for seeking redress against schools and industries whose practices are discriminatory toward persons with handicaps.

Now educators and employers are in search of techniques to be used to select the most appropriate setting for training persons with handicaps, and the Evans et al. (1976) criteria as revised, may be useful in the process of analyzing alternative methods for their training. In this study the revised Evans et al. (1976) criteria have been literally tailored to enhance

the decision-making process which is used when selecting the training settings for persons with handicaps. For example:

Need to Minimize Training Time.

Original	Revised
"... trainees cannot be allowed to pace training for their individual convenience but must be pushed through training as rapidly as possible.	"... to minimize training time for persons with handicaps may be at odds with the individual's ability to develop the skill.

Conceptually, the basic theme of the original criteria has been maintained in the revised form without exception. However, three new criteria have been identified and added to the list. The new criteria were: Evaluation, Solicitude and Social Cohesiveness/Work Adjustment. Social Cohesiveness/Work Adjustment was the only criterion which was not tested during the course of this study.

The intent of this study was first, to identify the criteria which were used by training authorities to select the training settings for handicapped persons. Second, it was to seek the opinions of impaired workers about how their job competencies were developed and whether the cited criteria were used when their training settings were chosen. Third, to seek opinions from advocates and interested professionals outside the state of Illinois as to whether they would use the criteria when selecting a training setting for a handicapped person.

CHAPTER III

METHOD AND PROCEDURE

Design of the Study

In Phase II the study was comprised of three sub-studies which were conducted by using a survey form of descriptive research. The first study was a continuation of the "pilot" study of Phase I. The second study was a survey of "impaired" workers, and the third study was a survey of advocates and professionals who were interested in the training of persons with handicaps. The objectives of these studies were to gather information about the criteria that had been or should have been used during the selection of the training setting for handicapped persons. The data collection procedures were based on those used in Phase I of the study. Although "structured" questionnaires were used in the interviews, a degree of latitude was permitted for in-depth probing of topics. The choice of many of these topics was influenced by the respondents who were interviewed during Phase I.

In Chapter III the report is divided into five sections which describe the methods and procedures used in each of the three sub-studies, the quality controls imposed and the statistical procedures. The first sub-study, the Authority Study, sought to quantify the criteria for determining the best approach for training handicapped persons ; second, to address the possibility of whether additional criteria might be included for determining which method of training was more efficacious for handicapped trainees, i.e., on-the-job, classroom/laboratory or a combination of the two training settings; and third, to validate which criteria were used when the training settings were chosen.

The second sub-study, which surveyed the impaired workers (Worker Study), had four objectives. First, to quantify information which had been used to determine the method for training handicapped persons by occupation. Second, to identify criteria used for determining the selection of the training setting. Third, to identify the criteria which the respondents used to seek employment. And, fourth, to quantify and validate the data for determining which criteria had or should have been used when the training settings of the respondents were chosen.

The third sub-study, the advocate and interested professionals study (Advocate Study), had one objective: to quantify criteria which should be used when selecting the training settings for handicapped persons.

Authority Study

The "Authority" Study is a continuation of the "pilot" study reported in Phase I. However, an added perspective to this study was to conduct a second interview by telephone with all of the former respondents.

Respondents. During Phase I of the study forty-four respondents who work in the state of Illinois were interviewed. In Phase II an additional eighteen respondents were interviewed, two of whom were employed in the state of Minnesota. Therefore, all statistics for this study have been computed for a population of sixty-two respondents.

The respondents were selected because of their involvement at various levels in prevocational or vocational training programs serving the handicapped citizens of communities in Illinois and Minnesota. Each respondent was contacted by telephone and was provided with a brief description of the purpose of the study. If the respondents agreed to participate, a one-hour interview was scheduled.

Questionnaire: first interview. The respondents were interviewed by members of the project staff. The questionnaire in Appendix A, with a "structured interview" format, was employed to guide interviewers' questions and to record responses. The interviewer began each interview by recording background information for each respondent. This information included the respondent's name and job title, the name of the organization for which the respondent worked, organization address and telephone number, and the condition and level of handicap of the persons served by the organization.

The interviewers asked each respondent to read descriptions of on-the-job training (OJT) and classroom/laboratory training (CL) and asked him/her to choose the most accurate description of the type(s) of training provided. In addition, respondents were asked to describe their training programs. This description included: 1) the design of training (e.g., upgrading existing employees or entry for new employees); 2) the intent of training (e.g., entry level performance, progression on a specific job, or transfer to a related occupation); 3) the occupation(s) for which training was designed; 4) the skill level and affiliation of trainers, and, finally 5) the kinds of study materials used by trainees.

Twenty-four sets of questions were asked to each respondent based upon the criteria for determining the setting for training of handicapped persons derived from the revised Evans et al. (1976) investigation. Each item was divided into two types of questions. The first type of question was a criterion quantification question. The purpose of these questions was to quantify each criterion by translating it into terms which could be measured by a numerical figure, a percentage, or some other scaled

response. For example, to quantify the cost criterion, the following statement was posed to the respondents: "The average cost of training a student (new employee) to the apprentice level (i.e., person has completed training) is $_____."

The second type of question inquired about each criterion, and was described collectively as criterion opinion questions. These were questions which required the subject to make a judgement about the preferable training method based upon her/his experience. For example, the judgement or "criterion opinion" question asked the respondent: "Realism of training can best be created with OJT ... 1, CL ... 2, COMB ...3." The responses to both criterion quantification and criterion opinion questions were recorded by interviewers.

Questionnaire: second interview. The questionnaire in Appendix B, which was used in the telephone interview, sought to further quantify and validate by data which criteria were used when selecting the training settings. The questionnaire was composed of two sections. Section one contained information to identify the respondent and to define specific terms of the study. Section two contained instructions to the respondent and listed the twenty-six criteria with descriptions. Each criterion had a Likert scale which permitted the respondent to make a judgement about the criterion. Using a seven point scale, the respondents were given the option to evaluate the extent to which they believed each criterion was used in the selection of the training setting for the vocational development of persons with handicaps.

Settings for interviews. The first interview was conducted face-to-face with the respondent. The time and place of interviews was determined by

each respondent. Each respondent was contacted by a project staff member (interviewer) and asked if he/she would participate in the study. If agreeable, the interviewer scheduled an interview at a time and location that was convenient to the respondent. Approximately two weeks prior to the interview, the interviewer mailed an information packet to the respondent. The contents of this packet included a letter identifying the name of the interviewer, the time and location of the interview, and a "skeleton" copy of the questionnaire. Respondents were asked to skim the questions in the skeleton questionnaire to familiarize themselves with areas of inquiry before the actual interview.

For the second interview the telephone was used to establish appointments and to conduct interviews. Fifty-one of the sixty-two respondents were available and willing to participate. Prior to the interview a copy of the questionnaire was mailed to forty-eight of the respondents, and to three of the respondents, who were sight impaired, both a questionnaire and a tape recording of the questionnaire were mailed.

Worker Study

The "Worker" Study is a sequel to the Authority Study with both a face-to-face and a telephone interview.

Respondents. Twenty-six "impaired" workers who are tenured employees (Tenure for the purpose of this study is twenty-four consecutive months or longer in the current employment.) live and work in the state of Illinois. The majority of the workers had physical impairments, but it was assumed that those who had other types of impairments differed no more from those who were physically impaired than the physically impaired differed from each other. The workers were identified as a result of inquiries made

to various training agencies which were asked to nominate individuals with whom they had had a current or former relationship. Each worker was identified by means of a modified form of "referral sampling" which appeared to be the most reasonable approach for reaching this low density and socially inconspicuous population for whom no central reference was available (Welch, 1975). The referrals (or branching nominations) provided the names of individuals for inclusion in the survey who met the prerequisites: "tenured" and "impaired." It was assumed that since each respondent was employed and had volunteered willingly to participate in the study, their conceptions of "training for work" and their preparation for work would be compatible and equal. Twenty-three respondents were interviewed by the staff (Three respondents were not available for the second interview.) using two questionnaires with "structured interview" formats. With each questionnaire interviewers asked respondents specified questions and recorded their answers.

Questionnaire: first interview. The questionnaire in Appendix C, which was used in this face-to-face interview, had three objectives. First, it sought to quantify and identify by data the training method which had been used when job competencies were developed for the respondents; second, it sought to identify criteria which were perceived to have been used or should have been used by training authorities when determining the training setting for these workers; and third, it sought to identify the criteria which the respondents used to seek employment. In this eleven-section questionnaire the interviewers recorded the respondents' answers in the appropriate blanks. The first, second and eleventh sections were used to record the demographic background of the respondents. The third,

fourth, and fifth sections were used to record the characteristics of respondents' training settings. Sections six, seven, eight and ten were used to determine what criteria were considered when the respondents' training settings were selected, and section nine was composed of questions which identified the criteria used by the respondents when seeking employment.

Questionnaire: second interview. The questionnaire in Appendix D, which was used in the telephone interview, sought to quantify and validate the data for determining which criteria had been used by training authorities for determining the training setting of the respondents and which criteria, in the opinion of the respondnets, should have been used. The questionnaire was composed of two sections. Section one contained information to identify the respondent and to define specific terms of the study. Section two contained instructions to the respondent and listed the twenty-six criteria with descriptive definitions. Each criterion had two Likert scales which permitted the respondent to make two different judgements about each criterion. The first was a seven point scale which permitted the respondent to evaluate the extent to which he/she believed the criterion was used in the selection of the training setting for their vocational development. The second was a five point scale which permitted the respondent to evaluate the extent to which he/she believed the criterion should have been used in the selection of his/her training setting.

Setting for interviews. For the first interview the time and place of interview was determined by each respondent. Twenty-four respondents were contacted initially by mail to seek their willingness to participate in the study. If the reply indicated agreement, an interview was scheduled

by telephone. Two respondents were contacted by the agency which informed the interviewer, and the interviewer made an appointment with these respondents by telephone.

The second interviews were arranged by telephone appointments. The interviewers were able to locate only twenty-four of the original twenty-six respondents who were willing to participate in this phase of the study. A copy of the questionnaire was mailed to twenty-three of the respondents to permit them to plan their responses prior to the interview. (One questionnaire was administered face-to-face because the respondent had a literacy deficit.) The interviewers were able to collect data from twenty-three respondents. The twenty-fourth respondent became ill and was not available for interview.

Advocate Study

The Advocate Study was designed to identify criteria which should be used when choosing a training setting for persons with handicaps. The identity of these criteria was obtained from advocates and interested professionals from outside the state of Illinois.

Respondents. Thirty-five persons who participated in this study worked in the Commonwealth of Pennsylvania, the District of Columbia, and the states of California, Delaware, Kansas, Michigan, New Hampshire, New Jersey, New York, Ohio and Oregon. All of these respondents had been participants in a program at a national conference or an "invited" seminar presented by the staff. The program reported the results of Phase I of the study and was used to solicit the opinions of the audiences about the criteria.

Questionnaire. The questionnaire in Appendix E was used to solicit the opinions of each audience. The data processed from these audiences were to identify the criteria which advocates and interested professionals believed should be used when choosing a training setting for persons with handicaps. The questionnaire was composed of a Participant Section and a Questions Section. The Participant Section was used by the respondents to first identify their hypothetical job title; and second, to identify the total number of months in their present job, the agency with whom they were affiliated, the city/town and state of current employment, and the identity of the handicap population with whom they had had experience. The Questions Section contained instructions to the respondent and listed the twenty-six criteria, with descriptive definitions and a number. If the respondent circled the number, it meant that the criterion would have been used during the process of selecting the training setting.

Setting. The settings for the programs were national professional conferences and "invited" seminars in California, Georgia, Pennsylvania and Washington, D.C. The programs used a lecture-discussion format supported by 35mm photograph transparencies (slides) which were used to portray the statistical results of Phase I. The first half of the program provided background information, described the criteria and addressed the research hypotheses and questions. The second half of the program involved the administration of the questionnaire and the discussion of the results. After the questionnaire was distributed to the audience, the program leader first, invited participants to choose a professional role in which they would participate during the process of selecting a training setting for persons

with handicaps. Next, the audience was asked to choose the criteria which they believed should be used when choosing the training setting, and for example, if the respondent circled the number "1" on the questionnaire, this indicated the respondent would have used that criterion in the process of selecting the training setting.

Quality Control

To assure reliability of the raw data collected during Phase I and II of the study, the project staff developed procedural guides (Appendixes F and G), interviewer training programs and a means to assess the respondents' self-reliance in answering interview questions.

Interviewer training. Each interviewer participated in a training program to learn to adhere to a standardized procedure for interviewing respondents. The intent of the training was to improve procedures for collection of data and to improve the quality of data collected. The procedure during each of the three, eighty minute, training sessions involved a discussion of the procedures to be used. It included one skilled interviewer conducting an actual interview and recording responses while the semi-skilled interviewer trainee also recorded the responses of the respondent. The interviewer trainee's recorded performance across all possible responses was calculated. The number of agreements was divided by the total number of possible responses (agreements + disagreements) and multiplied by 100 to yield the evaluated performance for the interviewer trainee.

$$\text{Evaluated Performance} = \frac{\text{Agreements}}{\text{Agreements + Disagreements}} \times 100$$

The trainee's performance for each training session during Phase II was ninety-nine percent or better on the face-to-face questionnaire (Appendixes A and C) and the telephone type questionnaire (Appendixes B and D).

Training Session	Interview	Performance (%)	Agreements + Disagreements
1	Face-to-Face	99.2	264 + 2
2	Face-to-Face	99.6	266 + 1
3	Telephone	100.0	52 + 0

Assessment of responses. Each question or question group of the questionnaire in Appendixes A and C were accompanied by a "Response Confidence Code." This code was recorded by the interviewers to evaluate a respondent's self-assurance when answering face-to-face interview questions. If, for example, a question was assessed to rate a "1" by seventy-five percent of the persons responding, that question's value was appraised to be a sound response, but if the response was rated a "3" by a like number of respondents, the question's value was thought to be suspect and was not included in the data analyses.

Statistical Procedures

Data analysis procedures. Frequency distributions, percentages, means, factor analysis and a t-test were used to respond to all research questions and to test the research hypotheses in this study. However, in order to analyze the data by occupation in the Worker Study the investigators choose to separate the workers into two groups: the "most complex" and the "complex." Using the hierarchy of worker functions listed in the Dictionary of Occupational Titles, the respondents' jobs' relationship to Data, People and Things (Appendix G) were grouped. The three listings, Data, People and Things, were divided

at the functions: 4 Computing, 4 Diverting and 4 Manipulating, respectively. Using the fourth, fifth and sixth digits of the respondents' job identity codes, the investigators were able to classify the respondents by the location of their three digits in the three worker function listings. When a respondent's worker function digits were located in any two of the listings with a digit between zero and four inclusive, the job was grouped in the "most complex" category. When two or more digits were five or greater, the job was grouped in the "complex" category. For example: the first six digits of the Transcription Secretary and Officer Manager's DOT code is 202 132. The fourth digit, "1", form the Data list identifies the function 1 Coordinating. The fifth digit, "3", from the People list identifies the function 3 Supervising. The sixth digit, "2" from the Things list identifies the function 2 Operating-Controlling. Since two or more of the function codes appear between zero and four, this worker was assigned to the "most complex" group.

Statistical limitations. (1) Authority Study: Nie, Hull, Jenkins, Steinbrenner & Bent (1975) caution researchers who use factor analysis to be conscious of potentially misleading results when a small set of independent variables (e.g., twenty-six criteria in this study) are used to determine the degree to which any given criterion or several criteria are a part of a common underlying phenomenon. Therefore, the investigators chose to use factor analysis for only exploratory purposes and is not reported in this study. (2) Worker Study: Due to the large number of different "impairments" in the population studied, the low number of cases of each type of impairment and due to the low number of respondents with non-physical impairments, the investigators deemed it inappropriate to attempt to compute statistical significance of the interaction or relationships between the identified criteria and other variables.

CHAPTER IV

RESULTS

Chapter IV reports in three sections and a summary the findings of the study. The data reported are sufficient to test the research hypoeses and to answer the research questions. The first and second sections report the findings of the Authority and Worker Studies, respectively. The third section reports the findings of the Advocate Study, and the chapter closes with a summary. (Note: In this chapter the percentages in some frequency distributions have been rounded by .9 or less to permit the summing of percentages to 100.)

Authority Study

Respondents

Respondents selected for participation in this study were identified on the basis of their professional relationships in the training of persons with handicaps. With these relationships in mind, the respondents were grouped in one of four job categories: counselor, administrator, trainer (instructor) or employer.

Counselor. The first category was composed of counselors. Their primary function in the training setting was to assist the handicapped trainee in the decision-making process of choosing a vocation.

Administrator. The second category was composed of administrators of training programs serving individuals with handicaps. Respondents selected for inclusion in this category were individuals involved in making the policy and procedure decisions of prevocational and vocational training programs.

Trainer. The third category included those people involved in developing, implementing, and teaching prevocational and vocational skills to persons with handicaps.

Employer. The fourth category of respondents were persons who employed, supervised, or fulfilled similar roles in industry and were directly or indirectly related to the training of persons with handicaps.

Identification of Respondents in Phase II. In Phase I the respondents were predominantly administrators and trainers. Consequently, in Phase II, emphasis was placed on finding respondents who were counselors and employers. The staff obtained the identity and, subsequently, the interviews from this supplemental population by inquiries to various agencies (see Appendix F) involved in the training of persons with handicaps and by referrals of respondents who participated in Phase I. A total of eighteen additional respondents were identified and participated in the study which enlarged the study population to sixty-two (N=62). Table 2 provides a frequency distribution of the total number of respondents in the Authority Study grouped according to job category, and Table 3 provides a frequency distribution of this population grouped by the handicapping condition of the trainee.

Table 2
Respondents Grouped
by Job Categories
N=62

Category	N	%
Counselor	15	24
Administrator	19	31
Trainer	17	27
Employer	11	18

Table 3
Respondents Grouped
by Handicapping Condition of Trainee
N=62

Trainee's Condition	N	%
Physical	13	21
Cognitive	24	39
Visual	14	22
Auditory	7	11
Speech	1	2
Multiple	3	5

The frequency distributions in these two tables appear to reflect an equitable distribution by job but an inequitable distribution by trainees' condition of handicap. Therefore, the investigators chose to collapse the data into four major categories of handicap during the second interview and the level of severity of handicap, i.e., mild, moderate or severe has been deferred to a future study because the respondent populations were also inequitably distributed for each condition of handicap. For example, there were twenty-four of the sixty-two respondents who were involved in the training of persons with "cognitive" conditions of handicap, however, when these respondents were grouped by level or severity of handicap, the distribution of respondents was MILD, N=6; MODERATE, N=16; and SEVERE, N=2.

In Figure 1 the respondents' counties or city of employment are reported. Two of the respondents were employed outside the state of Illinois in

② Minneapolis, Minnesota

Figure 1. Respondents' location of employment (Authority Study).

Minneapolis, Minnesota. The balance of the population was employed in the following county areas in the state of Illinois: ten were in Cook County; thirty-eight were in Champaign County; nine were in Macon County; two were in Sangamon County; and one was in Macoupin County.

Criteria Used in the Selection of the Training Setting

In this section the analyzed data which identified the criteria for the selection of the training method are reported. This data was collected during the first interview (face-to-face) with the questionnaire in Appendix A. When a respondent replied to a specific question, it was believed to be an honest, knowledgeable reply and an indication of which criteria were used and/or considered when choosing a training setting for handicapped trainees. The results obtained for each criterion are reported graphically in Figures 2, 3 and 4. Each alphabetized, graphical portrayal of data is keyed to the alphabetical prefix of each criterion in the text, e.g., A. Abilities and Aptitudes refers to the pie chart illustration: A. ABILITIES/APTITUDES.

A. Abilities and Aptitudes - demonstrated performance of the trainee in both physical and mental skills, and the measured talent of the trainee to learn and/or understand specified skills in a short period of time.

In Figure 2, Illustration A, the response to the question which pertained to the "Best method when trainees acquire skills slowly" [Q. 8c(1)] was a fifty-nine percent agreement by the respondents that trainees who acquire skills slowly can best be trained to perform the tasks of a job through on-the-job training.

B. Availability and Suitability of Physical Resources - obtainable training equipment and facilities for persons with handicaps to promote conditions which are identical to those the trainee will encounter on the job.

In Figure 2, Illustration B, the abbreviated subjective statement in the questionnaire, pertaining to this criterion was "Actual job conditions are more feasible in OJT: ____, CL: ____, COMB: ____" [Q. 5d(2)]. As expected, again eighty-one percent of the respondents strongly indicated that actual job conditions were usually more feasible in an on-the-job training setting and the balance of the respondents selected a combination of training settings.

C. Capability - the ability of a training activity to conduct training for persons with handicaps without degrading the quality of the trainee's post-training job performance.

In Figure 2, Illustration C, the results portrayed are based on the question pertaining to the "Method with most capable instructors" [Q. 5b(2)] . It appears that the most capable instructors for training persons with handicaps are usually acquired, according to fifty-one percent of the respondents, from a combination of training settings (on-the-job and classroom/laboratory).

D. Complexity - the number of principles, procedural sequences and motor skills required of the trainee to perform tasks and master requisite skills for the job.

To authenticate the identity of the criterion and to choose the best setting for training, the respondents were asked to specify the "Best method to teach easy to learn [least complex] tasks [Q. 7d(3)]. In Figure 2, Illustration D, forty-six percent of the respondents were in agreement that both classroom/laboratory training in conjunction with or succeeded by on-the-job training was the best method for teaching complex tasks. And, sixty-seven percent of the respondents chose on-the-job training for teaching the least complex tasks.

E. Costs - the amount of money, time, work, etc. expended to provide the facilities, personnel, resources, materials, equipment, transportation, prosthesis, etc. to train persons with handicaps.

In Figure 2, Illustration E, the "Most cost-effective method" [Q. 5a(3)] of training persons with handicaps appears to be on-the-job and a combination of classroom/laboratory plus on-the-job training, according to fifty and forty-three percent, respectively, of the persons interviewed.

F. Criticality - the ability of the trained worker to execute the essential skills to combat high risk conditions on the job.

The "Best method to teach skills involving high risk" [Q. 7b(2)] was a combination of training settings which was chosen by forty-four percent of the respondents, and thirty-eight percent chose on-the-job training (see Figure 2, Illustration F). Only eighteen percent of the respondents stated that skills involving high risk could best be acquired through classroom/laboratory instruction.

G. Disabilities - effect of trainee's handicapping condition upon the choice of training settings and the complexity of skills to be learned.

In addition to identifying the criteria used in decision-making, this study focused on identifying the setting within which trainees with specific handicaps could best learn to develop skills. In Figure 2, Illustration G, the "Best method when trainees have skill deficits [or handicaps] which are" physical, cognitive or visual was a combination training setting, and when the trainees have auditory handicaps, there appears to be a toss-up between on-the-job and combination training settings [Q. 8b(1) through Q. 8b(5)]. The differences in the responses between choosing on-the-job and combination training settings for persons with physical, cognitive and visual handicaps were minimal: an eight percent difference for the

physical, a three percent for the cognitive, and a one percent difference for the visual. It is apparent the respondents were in general agreement that trainees with handicaps, whether mental or physical, could learn to master tasks better through on-the-job or a combination training setting.

H. Evaluation - appraisal of the quality of training received by the trained worker during her/his training program.

In Figure 2, Illustration H, fifty-two percent of the persons who responded to the survey question about this criterion indicated that the quality of training can be assessed "most economically ... in" an on-the-job training setting (Q. 5h). Unfortunately, the word "in" in the question may be interpreted as "during" or "as a result of." The interpretation "during" was intended.

I. Frequency - the extent to which the tasks that most workers perform at a given skill level on-the-job are repetitive.

In the Evans et al. (1976) study, caution was advised in making decisions about teaching tasks in a specific training setting because more or less than fifty percent of the "nonhandicapped" graduates were required, after placement, to perform the tasks on-the-job. Evans and his cohorts advised that the repetitive (or non-repetitive) performance of tasks should not be the governing cirterion in determining the training setting. They recommended that additional criteria should be considered before making the decision, e.g., Performance of Graduates, Criticality and Cost. In Figure 2, Illustration I, fifty-eight percent of the respondents chose on-the-job training as the "Best method to teach on-the-job tasks which are performed weekly" [Q. 7a(3)].

H. History and Pragmatism - factors such as the results of research or personal experiences, that influence the decisions of training authorities to teach a competence on-the-job or in a classroom/laboratory setting.

In Figure 3, Illustration J, the respondents indicated that an organization which uses a specific method of training, chose the method based on one of three different factors. For on-the-job training, fifty-one percent of the respondents reported Data (research) to be the influencing factor. In the classroom/laboratory training setting Tradition ("we've always done it that way") was the factor. And, for the combination training setting, fifty percent of the respondents indicated that Both (Data and Tradition) were the influencing factors [Q. 5g(2) through Q. 5g(4)].

K. Instrumentality - generic skills in mathematics (read, write, and count) and communications (literal comprehension in reading and fluency and idea organization in writing and speaking) that are essential in learning competencies for the job.

In Figure 3, Illustration K, the "Best method to teach basic educational skills" is reported by fifty-three percent of the respondents to be in the classroom/laboratory setting [Q. 7g(2)]. In this sub-study, the kinds of tasks performed by most of the handicapped trainees did not require extensive skills in reading, computing, or communication. Only about fifty percent of the tasks required these skills [Q. 7g(1)].

L. Need to Minimize Training Time - the demand for workers in a given occupation which dictates a reduction in the amount of trainee preparation time to gain knowledge and abilities for satisfactory job performance.

The results of the interviews indicate that on-the-job training is the best training method "when time for training is limited" [Q. 6c(2)] (Figure 3, Illustration L). Further interpretation of these results indicate that under most conditions the time needed to train the handicapped trainees is considerably less when the training mode is on-the-job training. One reason for this may be that some parts of classroom/laboratory and/or combination training are not immediately or totally transferable to the assigned job.

M. Number of Personnel to be Trained - the trainee space in the classroom/laboratory or on-the-job, that may be occupied at any given time and will not adversely affect trainee and instructor time, use of equipment, materials, and facilities.

In Figure 3, Illustration M, the results indicate that "A large number of trainees can best be trained" in a combination training setting [Q. 6a(2)]. But, instructor time, use of equipment, material and facilities are cost effective elements of the training program when the flow of trainees through a classroom/laboratory setting is large, and the cost advantage in an on-the-job setting may disappear when the work place is subjected to a large number of trainees.

N. Passage of Time - the loss of knowledge and/or skill proficiency caused by the time interval between the completion of training and the initial performance on-the-job.

The "Least retraining" was required when the method of training was on-the-job [Q. 7f(6)], according to the results shown in Figure 3, Illustration N. Although most of the handicapped trainees referred to in these interviews had poor retention of verbal and written communications, the majority of the jobs for which they were trained required manipulative task-orientations rather than cognitive. Therefore, within reasonable time limits, the handicapped trainees, upon job placement, were able to retain the ability to perform most tasks with an acceptable degree of success.

O. Performance of Graduates - the comparative evaluation of workers' performance, based on their mode of training, to ascertain the best setting for specified skills to be developed.

In general, the results (Figure 3, Illustration O) identify combination trainees (fifty-seven percent) were the "most competent employees" [Q. 7e(2)]. The least competent were graduates who were trained in a classroom/laboratory setting.

P. Persistence of Demand for Trained Personnel - the influence of long-term job market requirements for trained workers in a specified occupation.

Fifty-four percent of the persons responding chose the combination training setting (Figure 3, Illustration P) as the "Best method when personnel are needed over an extended period" [Q. 6b(4)]. It appears that the respondents believed that the tasks of the job were best taught in a job-like situation regardless of the long-term job requirement for the trained worker.

Q. Philosophy and Policy - the best values, concepts, and systematic efforts that are formulated from experiences, hearsay, and/or research, that are used by industries and schools to clarify and coordinate their beliefs and that are eventually integrated into the "official" practices of the institutions concerned.

The specific question [Q. 5c(2)] designed to provide information about this criterion was: "Based on the policy of your organization the type of training preferred is OJT: ____; CL: ____; COMB: ____; NO PREFERENCE ____." The results were fifty-nine percent of the respondents indicated that their organization ususally preferred a combination of classroom/laboratory and on-the-job training as the method of instruction (Figure 3, Illustration Q).

R. Ports of Entry - the effect of local, state, or federal licensing agencies upon the pre-job entry training of workers.

In Figure 3, Illustration R, the "Method specified by a licensing agency or specific jobs" [Q. 7i(3)] was on-the-job training, according to fifty percent of the respondents. The number of respondents (N=12) who replied to this question indicates that a large majority of the jobs for which the respondents provided training were not controlled by a licensing board or agency. Most of the handicapped graduates of the training programs covered by this study were employed in service activities associated with food and facilities or engaged in jobs whose task and work behavior patterns required the use of simple tools and limited communicative skills. These types of jobs were usually not licensed or controlled by government agencies. Therefore, the Ports of Entry criterion has limited application for determining whether on-the-job training or classroom/laboratory instruction or a combination of the two provide the best setting for teaching the handicapped trainees a skill.

S. Preferred Learning Modes - the training setting which is most preferred by the trainee to learn skills of the job.

In response to the question, "Which training method is preferred by the trainees for learning the skills of the job?" [Q. 8a(1)], the educators and the employers who train persons with handicaps were in strong agreement, sixty-three percent of those responding, that the trainees preferred to learn by on-the-job training. Another interesting observation depicted in Figure 4, Illustration S, was that only five percent of the sixty respondents stated a preference for classroom/laboratory instruction. Therefore, it appears that most of the respondents' handicapped trainees attained greatest career satisfaction when they were able to work and learn on the job. The results of the study also seem to indicate that trainee's

preference for learning method should be taken into consideration when the circumstances permit.

T. Prior Experience - the individual skills and knowledge acquired from previous training or work which are potentially transferable to the "new" behavior to be learned.

The results provide support for the idea that trainess who have these pre-training performance behaviors can best be trained in an on-the-job or a combination of on-the-job and classroom/laboratory settings [Q. 8d(2)]. The results in Figure 4, Illustration T, indicate that only five percent of the fifty-eight respondents chose a classroom/laboratory setting for maintaining or improving prior performance behaviors. It may be assumed, then, that in general, the respondents believed that prior experience of the trainees was job-specific and that basic cognitive skills were not very relevant for competent job performance.

U. Quality Control - the degree of excellence in post-training job performance which is attributable to the type of training received.

In Figure 4, Illustration U, the "Average number of days for a trainee to produce work of acceptable quality" [Q. 7h(2)] by training setting was sixty-three days for on-the-job, three hundred and thirty-six plus days for classroom/laboratory and one hundred and twenty-eight days for combination.

V. lity of Atmosphere - the training setting where realism can best be created to be most like the work place.

There was an indication on the part of the respondents that realism was required in the development of training programs for persons with handicaps. However, no one knew to what degree reality of atmosphere improved the technical skills of the trainees. Although the survey did

not address directly the degree of effectiveness of this criterion, it is clear that seventy-two percent of the respondents do support the concept that reality of atmosphere (Figure 4, Illustration V) reinforces the learning of technical skills and "can best be created" in an on-the-job training setting [Q. 5e(2)].

W. Screening Device - the use of training as an assessment strategy to identify, train, hire, and/or promote persons with handicaps.

In Figure 4, Illustration W, the "Best method to evaluate a trainee for hiring and promotion" [Q. 5f(2)] was in an on-the-job training setting. Comments by some respondents indicated that trainee strengths and weaknesses in relation to people and material things were more readily assessed on-the-job than they were in a classroom environment. Therefore, they believed that security checks or physical/psychological examinations for assessing the reliability of the persons' performance in difficult situations were best accomplished in conjunction with on-the-job or combination training.

X. Social/Work Cohesiveness. Research of this criterion had been deferred to a future study.

Y. Solicitude - acts of pity or encouraged "dependency" which affect the social interactions of handicapped and nonhandicapped persons in both the training and work settings.

This criterion was not tested during the face-to-face interview but it was included in the telephone interview (Appendix B). The results depicted in Figure 4, Illustration Y, indicate that the educators and employers, grouped by their organizations' training setting, confirmed that they used this criterion OFTEN to ALWAYS. Fifty-four percent of the respondents who are affiliated with organizations that use a combination training setting, thirty-one percent of the respondents from on-the-job training

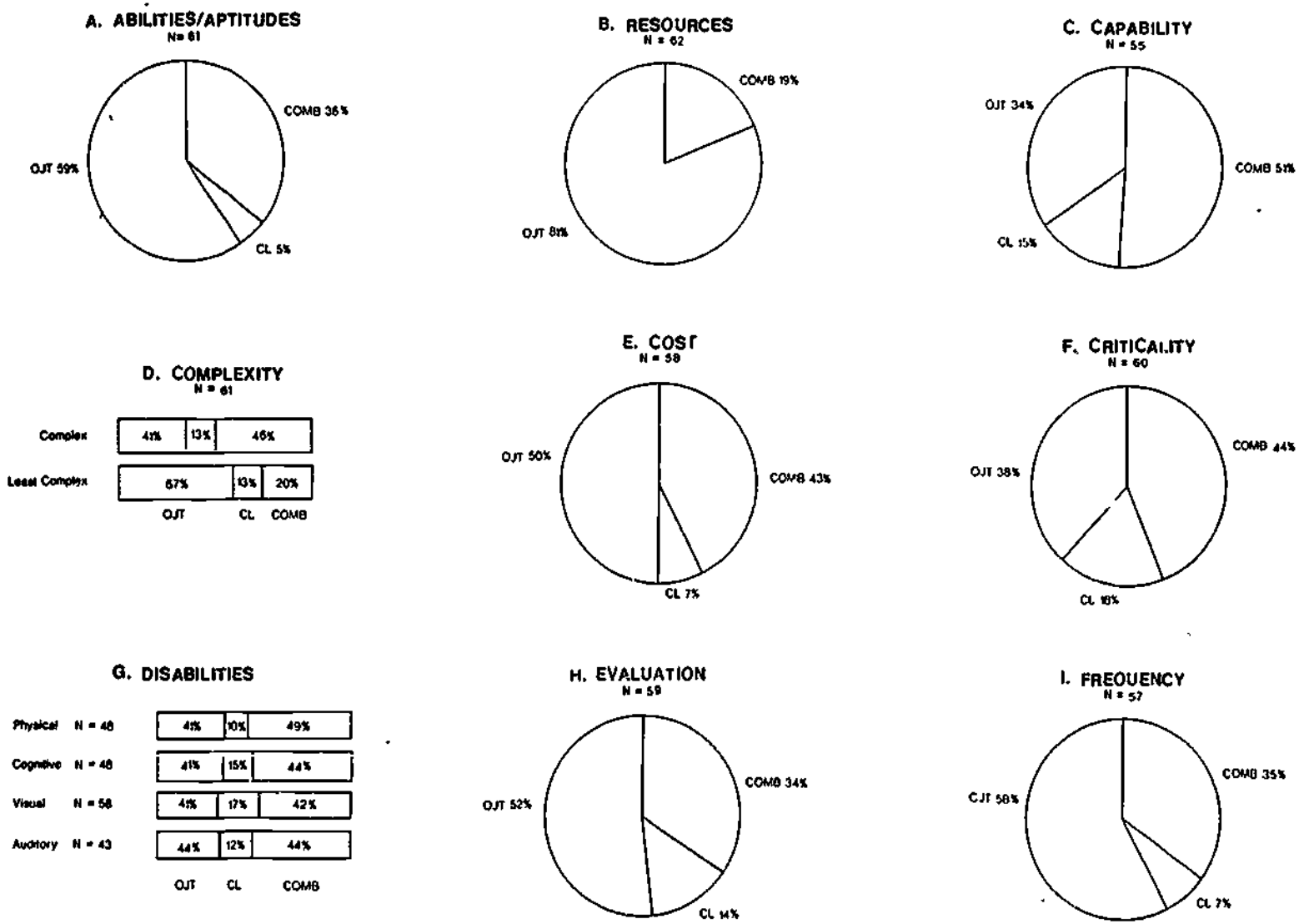


Figure 2. Identified criteria and the preferred method of training (Illustrations A through I).

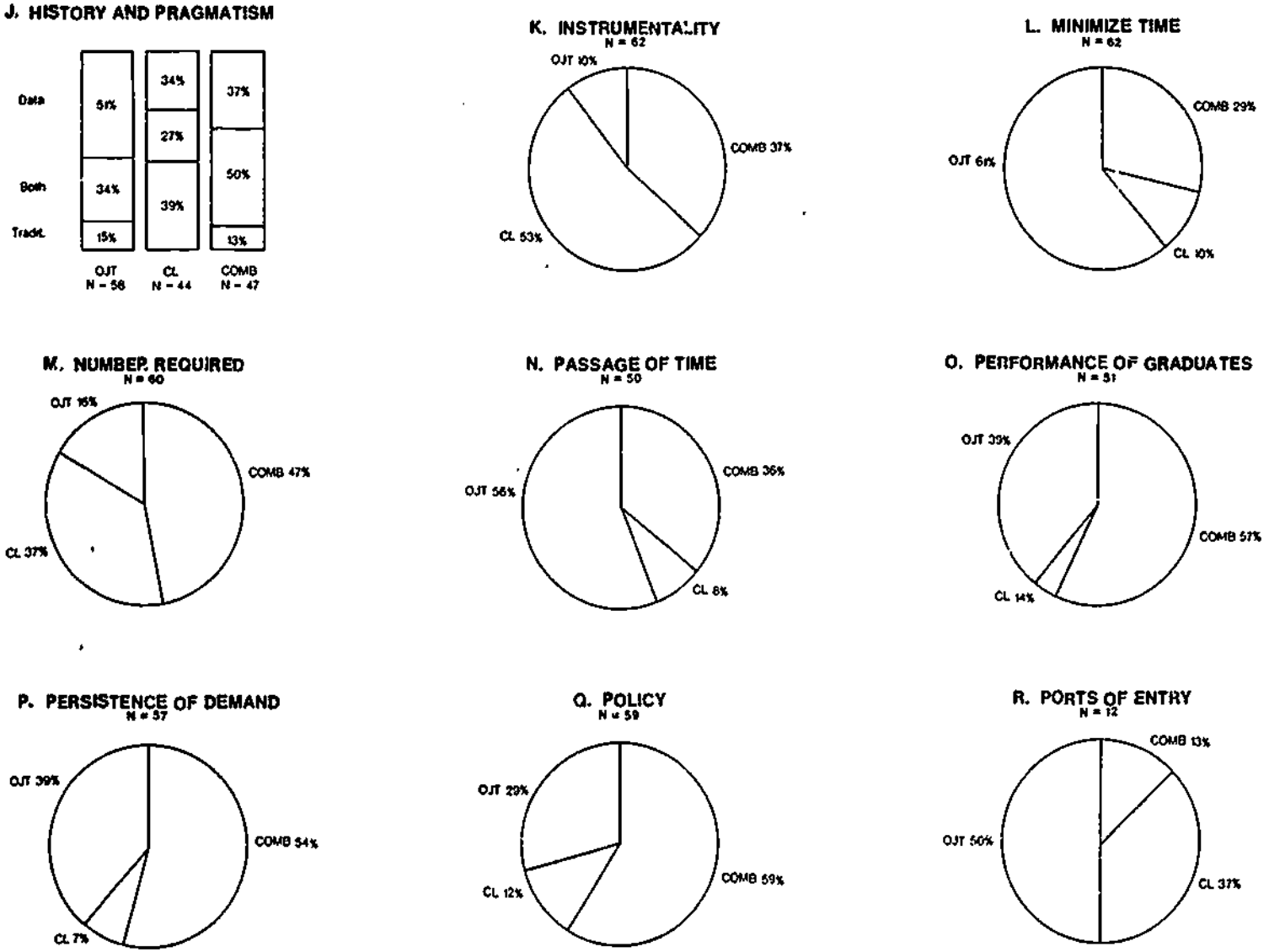
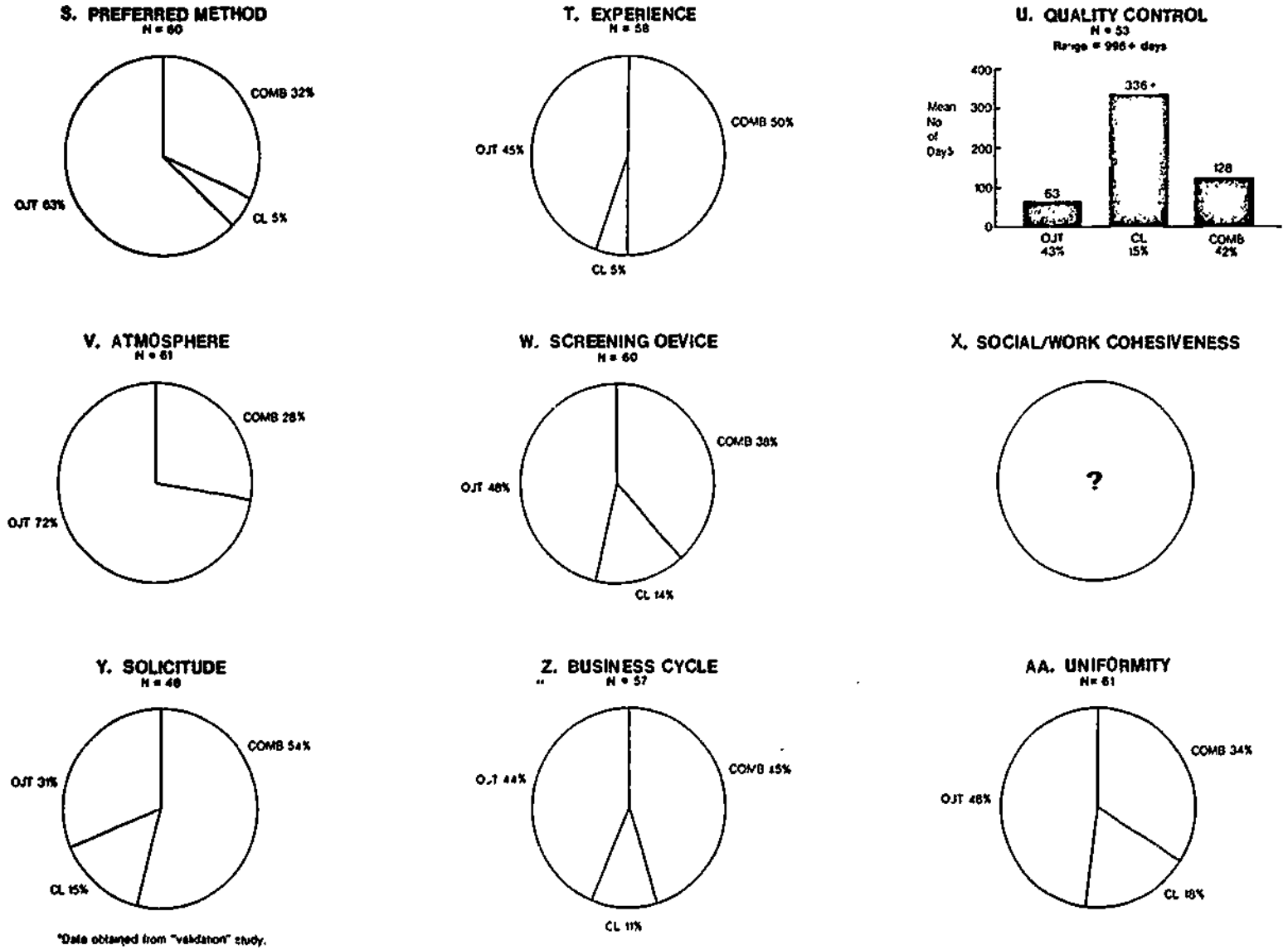


Figure 3. Identified criteria and the preferred method of training (Illustrations J through R).



*Data obtained from "validation" study.

Figure 4. Identified criteria and the preferred method of training (Illustrations S through AA).

settings and fifteen percent from class oom/laboratory settings confirmed their use of the criterion.

Z. State of the Business Cycle - the extent to which the economy is able to support full employment for all those desiring work (Levitan & Taggart, 1977).

In Figure 4, Illustration Z, the results of the study indicated that "when the demand for workers is high" [Q. 6d(2)], training can best be supplied through either on-the-job (forty-four percent) or combination (forty-five percent) training settings. The study did not investigate, however, which method(s) of instruction would have been chosen for training persons with handicaps when the need for labor diminishes.

AA. Uniformity - the extent to which all trainees should accomplish like tasks in a similar manner.

In Figure 4, Illustration AA, the results indicate the respondents believe that greater uniformity of trainee job/task performance can best be attained through on-the-job training [Q. 7c(2)]. Unfortunately the study did not explore the reasons why the respondents strongly believe OJT provides the best opportunity for standardization of training. One reason may be that the skills typically acquired in a classroom/laboratory setting do not mirror the tasks needed on the job.

Research Questions and Hypothesis

Research Question One. What criteria are currently used for deciding if the handicapped are best taught a skill on-the-job or best taught in a school-like setting? The analyzed data from both the first and second interviews were used to identify these criteria. In the preceding section of this chapter twenty-five of the twenty-six criteria tested were identified

using the data from the first interview and the twenty-sixth criterion, Solicitude, was identified using data from the second interview.

The second interview questionnaire was designed to collect data which would permit the validation of criteria identified during the first interview. This questionnaire used a seven point, Likert scale, "7: Always Used" through "1: Never Used", which permitted a judgemental decision by the respondent for each criterion. The results of the second interview are reported in Table 4. These data were derived by responses collected on the scale from point "5: Often Used" through point "7: Always Used", and the frequency in which the criteria were chosen is reported in percent. The data show that all twenty-six criteria were reported to have been used by these respondents when they participated in the selection of the training settings for persons with handicaps.

Table 4
Ranking Criteria by Use as Reported by Training Authorities
N=51

Re: No.	Criteria*	Rank (%)
8	Evaluation	84
4	Complexity	80
7	Disabilities	76
13	Number of Personnel to be Trained	76
11	Instrumentality	75
19	Preferred Learning Modes	73
26	Uniformity	71
1	Abilities and Aptitudes	69
20	Prior Experience	69
21	Quality Control	67
6	Criticality	65
3	Capability	61
14	Passage of Time	57
15	Performance of Graduates	57
16	Persistence of Demand for Trained Personnel	57
5	Costs	53
2	Availability and Suitability of Physical Resources	51
9	Frequency	51
22	Reality of Atmosphere	49
12	Need to Minimize Training Time	45
25	State of Business Cycle	45
17	Philosophy and Policy	41
18	Ports of Entry	37
24	Solicitude	37
10	History and Pragmatism	33
23	Screening Device	20

* See pages 51 - 64 for descriptions.

Research Question Two. How do these criteria vary with type of handicap? To answer this question the data from the second interview were used. In Tables 5, 6, 7, and 8, using both the statistical and data analysis guidelines which were followed to answer Research Question One and the cross-tabulation procedures outlined in the Statistical Package for the Social Sciences, the frequencies in percent are reported in rank order.

Table 5
Ranking Criteria by Use as Reported by Training Authorities Who Select the Training Setting for Persons with Physical Handicaps
N=10

Re: No.	Criteria	Rank (%)
11	Instrumentality	90
4	Complexity	80
7	Disabilities	80
8	Evaluation	80
13	Number of Personnel to be Trained	80
20	Prior Experience	80
26	Uniformity	80
3	Capability	70
6	Criticality	70
16	Persistence of Demand for Trained Personnel	70
19	Preferred Learning Modes	70
21	Quality Control	70
1	Abilities and Aptitudes	60
15	Performance of Graduates	60
22	Reality of Atmosphere	60
25	State of the Business Cycle	60
12	Need to Minimize Training Time	50
14	Passage of Time	50
18	Ports of Entry	50
2	Availability and Suitability of Physical Resources	40
10	History and Pragmatism	40
17	Philosophy and Policy	40
5	Cost	30
9	Frequency	30
23	Screening Device	30
24	Solicitude	30

* See pages 51 - 64 for descriptions.

Table 6
Ranking Criteria by Use as Reported by Training Authorities Who Select the Training Setting for Persons with Cognitive Handicaps
N=20

Re: No.	Criteria*	Rank (%)
8	Evaluation	90
7	Disabilities	85
4	Complexity	80
11	Instrumentality	75
13	Number of Personnel to be Trained	75
19	Preferred Learning Modes	75
3	Capability	70
5	Cost	70
9	Frequency	70
14	Passage of Time	70
21	Quality Control	70
26	Uniformity	70
1	Abilities and Aptitudes	65
6	Criticality	65
20	Prior Experience	65
15	Performance of Graduates	55
16	Persistence of Demand for Trained Personnel	55
22	Reality of Atmosphere	55
25	State of the Business Cycle	50
2	Availability and Suitability of Physical Resources	45
18	Ports of Entry	45
12	Need to Minimize Training Time	40
17	Philosophy and Policy	40
10	History and Pragmatism	40
·	Solicitude	35
23	Screening Device	10

* See pages 51 - 64 for descriptions.

Table 7
Ranking Criteria by Use as Reported by Training Authorities Who Select the Training Setting for Persons with Visual Handicaps
N=14

Re: No.	Criteria*	Rank (%)
4	Complexity	86
8	Evaluation	78
1	Abilities and Aptitudes	71
13	Number of Personnel to be Trained	71
19	Preferred Learning Modes	71
26	Uniformity	71
11	Instrumentality	64
15	Performance of Graduates	64
20	Prior Experience	64
6	Criticality	57
2	Availability and Suitability of Physical Resources	57
7	Disabilities	57
21	Quality Control	57
14	Passage of Time	50
24	Solicitude	50
3	Capability	43
5	Cost	43
12	Need to Minimize Training Time	43
16	Persistence of Demand for Trained Personnel	43
17	Philosophy and Policy	43
22	Reality of Atmosphere	43
25	State of the Business Cycle	36
9	Frequency	28
10	History and Pragmatism	28
18	Ports of Entry	28
23	Screening Device	21

* See pages 51 - 64 for descriptions.

Table 8
Ranking Criteria by Use as Reported by Training Authorities Who Select the Training Setting for Persons with Auditory Handicaps
N=7

Re: No.	Criteria*	Rank (%)
1	Abilities and Aptitudes	86
7	Disabilities	86
8	Evaluation	86
13	Number of Personnel to be Trained	86
2	Availability and Suitability of Physical Resources	71
4	Complexity	71
9	Frequency	71
11	Instrumentality	71
16	Persistence of Demand for Trained Personnel	71
19	Preferred Learning Modes	71
20	Prior Experience	71
21	Quality Control	71
3	Capability	57
5	Cost	57
6	Criticality	57
12	Need to Minimize Training Time	57
26	Uniformity	57
14	Passage of Time	43
15	Performance of Graduates	43
17	Philosophy and Policy	43
24	Solicitude	43
10	History and Pragmatism	28
22	Reality of Atmosphere	28
23	Screening Device	28
25	State of the Business Cycle	28
18	Ports of Entry	14

* See pages 51 - 64 for descriptions.

Tables 5 through 8 report the criteria by rank. The most used criteria has the highest ranking percent. Evaluation appears to have been the most used across all categories of handicap, and the Number of Personnel to be Trained the second most used. Screening Device appears to have been the least used. The conditions of handicap appear to influence the use of criteria, but to what degree is not apparent. The extent to which the use of the criteria are influenced by the condition of handicap will be deferred for future research.

Research Question Three. How should these criteria and their use be modified to increase client competence? The results reported in Tables 5 through 8 clearly amplify the need for the individualized use of the criteria by condition of handicap. The investigators believe there is a need for a larger population of respondents to confirm these results, however, the information which has surfaced from this study strongly suggests that each criterion should be used when selecting the training setting for the vocational development of handicapped persons.

Research Hypothesis One. To develop job competencies for persons with handicaps, the training settings which authorities choose most frequently will be a combination of training settings, e.g., classroom/laboratory instruction succeeded by on-the-job training or in conjunction with on-the-job training. In Figures 2, 3, and 4 it appears that on-the-job training was selected most frequently (fourteen selections) and a combination of training settings was a very close second (eleven selections). Therefore, the hypothesis is apparently false.

Worker Study

This section summarized in nine sub-sections the findings of this study. The data reported are sufficient to test the research hypothesis two and answer the research questions. The first two sub-sections will provide a detailed description of the respondents and the characteristics of the training programs which prepared them for their current jobs. Sub-sections three, four, five, six, and seven report information which provided the bases for answering research questions one through six, respectively. Sub-section eight addresses the research hypothesis and sub-section nine reports the identification of job placement criteria.

The study used a small population which permitted only a limited test of operational, statistical, and analytical procedures. Therefore, the results reported herein should be weighed with that factor in mind.

Respondents. The respondents for this study were twenty-six of sixty-seven persons identified and nominated by two advocate agencies for the handicapped in Champaign County, Illinois. Both agencies, by joint agreement with the investigator, extended invitations to the nominees. However, confidentiality controls of client records precluded the screening of respondents. Therefore, the information which was made available to the investigator was limited to the names and addresses of only those respondents who agreed to participate, after initial contact had been made by the nominating agencies concerned. Five of the nominees were queried by one of the nominating agencies in person because these

nominees were suspected to have literacy deficits. Sixty-two nominees were mailed formal letters by the second nominating agency with a letter from the investigator and an enclosed self-addressed post-card. If the recipients of these letters agreed to participate in the study, they were requested to return the post-card, signed, to confirm their agreement. Eventually, twenty-four of the latter group and two of the first group agreed to participate in the study, population N=26. From the time of the initial contact (with the first of four agencies queried) to the final interviews, a period of ten months and five days had elapsed.

In Figure 5 the respondents' county of employment is reported. Thirteen of the respondents were employed in Champaign County; Cook and Sangamon Counties were each represented by three respondents; DuPage and Vermillion Counties were each represented by two respondents; and Kankakee, Rock Island, and Macon Counties were each represented by one respondent.

The respondents' demographic profile is reported by frequency data and job complexity. The twenty-six respondents were divided into two groups based on the complexity of their occupations, i.e., "most complex" and "complex." This division was suggested by the results from Phase I which reported that vocational competencies of handicapped persons are developed in three categories: the complex, the less complex, and the easy to learn. Therefore, the investigators were curious to see if the respondents' complexity of occupation made a difference in the content of the data collected. Thirteen respondents were assigned by the investigator to the "most complex" category, and thirteen were assigned to the "complex" category.

Figure 5. Respondents' location of employment (Worker Study).

The profile includes: first, the job identity of respondents (identified by the first six digits of the Dictionary Occupational Titles' Code and the job label); second, their mean age; third, their sex; fourth, their ethnicity; fifth, their type of impairment; sixth, their education/training for their current employment; seventh, the respondents' family income during their period of dependence; eighth, the time in the respondents' life and employment cycle that their handicapping condition occurred; ninth, identification of pre-job employment experience; and tenth, respondents' views of which factors influenced their decision to be self-supporting and independent. (Note: parenthetical figures identify the respondents who did not participate in the second interview.)

Descriptor			Most Complex N=13	Complex N=13(-3)
1. Job (6-digit code & label)				
005	061	Civil Engr.	1	
076	107	Speech Path.	1	
090	227	College Fac. Mbr.	1	
091	227	Secondary Ed. Tchr.	2	
094	227	Special Ed. Tchr.	1	
099	167	Certification Select. Sp.		1(-1)
110-117		Corporate Lawyer	1	
159	117	Radio & TV Producer	1	
160	167	Budget Accountant		1
165	067	Public Relations Sp.		1
169	167	Office Manager		2
183	117	Production Supt.	1	
195	107	Case/Social Worker	3	
202	132	Transcription Secr. & Office Manager	1	
210	367	Account-Information Bookkeeper		1
213	685	Data Processing Operator		2
249	367	Evaluator		1
260	357	Agr. Cmsn. Agent		1(-1)
274	357	Bldg. Equip. & Sup. Mgr.		1
323	687	Housekeeper (Cleaning)		1(-1)
929	587	Nut-Bolt Assembler		1

Descriptor	Most Complex	Complex
2. Age (years)		
Mean	39	38
Range	28-46	28-50
3. Sex		
Female	5	4(-1)
Male	8	9(-2)
4. Ethnicity		
European - American	12	13(-3)
Indo - Aryan - American	1	
5. Impairment		
Physical	11	10(-2)
Cognitive		2(-1)
Visual		1
Multiple	2	
6. Education/training for		
Current employment (mode)		
Post-secondary (Classroom/Laboratory)	1	1
Post-secondary & Work Site (Combination)	11	7(-1)
Secondary & Work Site (Combination)		1(-1)
Work Site Classroom/Laboratory & Work Site (Combination)		2
Work Site (On-the-Job)	1	2(-1)
Sum total of training settings:		
On-the-Job	1	2(-1)
Classroom/Laboratory	1	1
Combination	11	10(-2)
7. Family income during		
Dependency (in thousands of dollars)		
Mean	<28	<27*
Range	<10-≥60	<5-≥60*

*Note: N= 12 for these statistics.

Descriptor	Most Complex	Complex
8. Occurrence of condition		
In life		
Birth	3	5(-3)
Pre-adolescence	2	4
Adolescence	4	4
Post-adolescence	4	
In employment		
After employment	1	3
Before employment	12	10(-3)
9. Pre-job employment experience		
Part-time employment	10	13(-3)
10. Factors which influenced		
the attainment of independence		
self-perception of ability	2	6(-2)
encouragement to work	1	1
negative comments by others	1	
encouragement by training authorities	1	
encouragement by family members	8	6(-1)

The workers who were trained in combination settings, classroom/laboratory and on-the-job, are the dominant respondents. Consequently, the data collected may be biased by their affiliation with that method of training.

Characteristics of Respondents' Training Programs. The respondents' descriptions of their respective training programs were obtained from data collected during the first interview. These descriptions are reported in this section as the "characteristics" of their training programs. Using eight of the criteria [which are referenced (Re:) by number and described in Chapter II] as description titles, the characteristics of the training programs are identified using abbreviated questions from the first interview questionnaire. The respondents' identification

of the characteristics of their training programs are indicated in percent, based on the population, N=26, in the column titled "Agreement."

Descriptor	Agreement (%)
1. Re: #2. Availability and Suitability of Physical Resources	
a. [My . . .] equipment and facilities were the same or better than the job setting. [Q. #6d(1)]	85
b. [My . . .] training tasks and job behaviors were generally identical. [Q. #6d(2)] . . .	77
c. [My . . .] best physical resources for training were: [Q. #6d(3)]	
On-the-Job	50
Classroom/Laboratory	15
Combination	35
2. Re: #3. Capability	
a. [My . . .] on-the-job instruction was considered current. [Q. #6b(1)]	77
b. [My . . .] on-the-job instructors were generally qualified. [Q. #6b(3)]	73
c. [My . . .] classroom/laboratory instruction was considered current. [Q. #6b(2)]	62
d. [My . . .] classroom/laboratory instructors were generally qualified. [Q. #6b(4)]	62
3. Re: #9. Frequency	
[The] behavioral skills [which I] learned were generally required on the job. [Q. #8a(2)] . . .	77
4. Re: #11. Instrumentality	
[The] essential generic skills [for me] to learn job competencies were: (Q. #5f)	
1. Math	
a. Read	92
b. Write	100
c. Count	92
2. Communications	
a. Literal comprehension	92
b. Organize ideas	92
c. Express or speak fluently	92

Descriptor	Agreement (%)
5. Re: #12. Need to Minimize Training Time	
[The] average number of months [for me] in training to obtain skills for the job: [Q. #7c(1)]	
Mean: 39 months Range: 1-119 months	96
6. Re: #13. Number of Personnel to be Trained	
[The] average number of trainees in training [with me] at one time: [Q. #7a(1)]	
Mean: 100 Range: 1-650	77
7. Re: #23. Screening Device	
[I was] screened before completing training. [Q. #8f(1)]	81
8. Re: #27. Uniformity	
Minimum emphasis was placed on [my] behavior being uniform. [Q. #8c(1)]	57

Research Question One. What criteria do handicapped workers report were used for deciding the training setting for development of their job competency? To answer this question the data collected with the second interview questionnaire on the scale "7-Always Used to 1-Never Used" were analyzed. This analysis is reported in Table 9 from responses collected on the scale in categories: 5-Often Used; 6-Very Often Used; and 7-Always Used.

The frequency in which the criteria were used by the respondents' training authorities are ranked in percent. It appears that all twenty-six criteria were used to some degree when the training setting was selected for this group of respondents.

Table 9

Percent Rankings of Criteria by Use During the Selections of the Workers' Training Settings
N=23

Re: No.	Criteria*	%
1.	Abilities and Aptitudes	65
8.	Evaluation	65
10.	History and Pragmatism	65
4.	Complexity	57
17.	Philosophy and Policy	57
7.	Disabilities	52
11.	Instrumentality	52
16.	Persistence of Demand for Trained Personnel	52
25.	State of the Business Cycle	52
5.	Costs	48
9.	Frequency	48
20.	Prior Experience	48
21.	Quality Control	48
22.	Reality of Atmosphere	48
26.	Uniformity	48
13.	Number of Personnel to be Trained	43
15.	Performance of Graduates	43
18.	Ports of Entry	43
3.	Capability	34
6.	Criticality	34
19.	Preferred Learning Modes	34
23.	Screening Device	34
14.	Passage of Time	30
2.	Availability and Suitability of Physical Resources	23
24.	Solicitude	23
12.	Need to Minimize Training Time	13

* See pages 51-64 for descriptions.

Research Question Two. How do these criteria vary with type of handicap? Since the population was dominated by persons with physical handicaps (approximately 88%), this research question will be considered in a future study.

Research Questions Three and Four. How do these criteria vary with the level of complexity of training, and how do these criteria

vary with the job for which trained? To answer these questions the investigator assumed that the training settings which were reported by the respondents led to their current jobs. Therefore, the respondents identified to be in the most complex jobs were presumed to have been prepared for their jobs in training settings where the subject content was "most complex." Also, it was presumed that the respondents identified to be in the complex jobs were prepared in training settings where the subject content was "complex." In Table 10 using data collected in the second interview on the scale 7-Always Used to 1-Never Used, the calculated means of each criterion are compared by two groups of respondents: the most complex job group and the complex job group. The mean difference between each criterion of the two groups has been calculated and ranked.

The data show that nineteen of the criteria were more frequently used for the most complex job group than for the complex job group, when their training settings were chosen, and seven of the criteria were more frequently used for the complex job group. However, since the jobs of these respondents were far above average in complexity and their responses to questions appeared to show that the two groups came from two populations with unequal means and unequal variances, a t-test was conducted to see if there was a significant difference between the two groups' means. The results were: the t-score for the difference was plus 3.38359 for a two tailed test at the .003 level with 25 degrees of freedom. Therefore, the investigator's hypothesis was tenable. One of three messages may be implied by these results. First, the majority of the criteria we more frequently used for making decisions about the training settings for persons who were preparing for entry into more complex jobs, or second,

Table 10

Ranked Mean Difference on the Use of Criteria by Complexity of Job N=23

Re: No.	Criteria*	Job: Most Complex	Job: Complex	Mean Difference
8.	Evaluation	6.00	4.10	1.90
22.	Reality of Atmosphere	5.00	3.40	1.60
17.	Philosophy and Policy	5.38	3.80	1.58
16.	Persistence of Demand for Trained Personnel	5.15	3.70	1.45
3.	Capability	4.08	2.90	1.18
18.	Ports of Entry	4.46	3.40	1.06
6.	Criticality	4.62	3.60	1.02
4.	Complexity	5.08	4.10	.98
5.	Costs	4.31	3.40	.91
1.	Abilities and Aptitudes	5.15	4.30	.85
24.	Solicitude	3.38	2.60	.78
21.	Quality Control	4.62	4.00	.62
7.	Disabilities	4.69	4.10	.59
25.	State of the Business Cycle	4.61	4.10	.51
15.	Performance of Graduates	3.85	3.40	.40
2.	Availability and Suitability of Physical Resources	3.77	3.40	.37
14.	Passage of Time	3.31	3.00	.31
20.	Prior Experience	4.46	4.20	.26
26.	Uniformity	4.15	4.10	.05
23.	Screening Device	2.85	3.00	-.15
9.	Frequency	4.08	4.40	-.32
13.	Number of Personnel to be Trained	3.85	4.20	-.35
19.	Preferred Learning Modes	3.46	3.90	-.44
11.	Instrumentality	4.08	4.70	-.62
10.	History and Pragmatism	4.46	5.20	-.74
12.	Need to Minimize Training Time	2.62	3.40	-.78

* See pages 51-64 for descriptions.

persons in the most complex job group are far more aware of what criteria were used when their training settings were chosen, or third, the complex job group members were not considered as "special folks" and therefore

received fewer "strokes" that the most complex group members when their training settings were chosen.

Research Question Five. What modifications to these criteria are recommended and why? Using data from the second interview questionnaire, the responses are compared between the two scales, i.e., the scale 7-Always Used to 1 - Never Used, is compared with the scale 5 - Always Used to 1 - Never Used. In Table 11 the ranked percent of total responses which were recorded in the 5 - Often Used, 6 - Very Often Used, and 7 - Always Used on the scale 7 to 1 and the percent of total responses which were recorded in the 4 - Often Used and 5 - Always Used on the scale 5 to 1 are compared. A positive difference between the two responses indicates that the respondents believed there was a need for more frequent use of the criterion in question. A negative difference indicates that less emphasis should be given to this criterion. A null indicates that the criterion was used appropriately. The responses indicate that the respondents believe there is a need for a greater emphasis of the criteria as ranked, when training settings are chosen. That is, there is a need for greater emphasis on seventeen of the criteria (Re: No. 2, a 42% difference to Re: No. 24, a 4% difference) and a lesser need for seven of the criteria (Re: No. 12, a -4% difference to Re: 10, a -31% difference). The investigator believes the cited seventeen criteria were seldom considered when the training settings for these workers were chosen.

Research Question Six. Which method of training do handicapped workers feel had the greatest positive influence upon individual placement or opportunities for advancement? Using three of the criteria

Table 11

Ranked Percent Difference:
Criteria Used and Criteria Which Should Have Been
Used When Selecting the Training Settings
N=23

Re: No.	Criteria*	Responses in Percent: Should Use	Used	% Difference
2.	Availability and Suitability of Physical Resources	65	23	42
19.	Preferred Learning Modes	74	34	40
3.	Capability	70	34	36
6.	Criticality	70	34	36
9.	Frequency	83	48	35
15.	Performance of Graduates	78	43	35
20.	Prior Experience	78	48	30
26.	Instrumentality	78	52	26
21.	Quality Control	74	48	26
8.	Evaluation	87	65	22
14.	Passage of Time	52	30	22
22.	Reality of Atmosphere	65	48	17
13.	Number of Personnel to be Trained	57	43	14
4.	Complexity	70	57	13
16.	Persistence of Demand for Trained Personnel	61	52	9
7.	Disabilities	57	52	5
24.	Solicitude	26	22	4
1.	Abilities and Aptitudes	65	65	0
26.	Uniformity	48	48	0
12.	Need to Minimize Training Time	9	13	-4
23.	Screening Device	30	34	-4
5.	Costs	43	48	-5
18.	Ports of Entry	34	43	-9
25.	State of the Business Cycle	43	52	-9
17.	Philosophy and Policy	43	57	-14
10.	History and Pragmatism	34	65	-31

* See pages 51-64 for descriptions.

and their associated questions from the questionnaire used in the first interview, the respondents' opinions on this topic were obtained and are reported in Table 12.

Table 12

Training Settings with Greatest Influence
Upon Job Placement and Advancement

	Criteria N=	Q. #	Method of Training OJT %	CL %	COMB %
1. Re: #5.	Costs N=26 Most preferred setting for current job?	6a(2)	27	8	65
2. Re: #10.	History and Pragmatism N=26 Recommended setting to enter current job? . . .	6g(3)	23	12	65
3. Re: #15.	Performance of Graduates N=23 Setting preferred to attain wage increase or promotion?	8c(3)	48	9	43

The data support the use of a combination of training settings for gaining job placement, but there appears to be little difference between combination and on-the-job training for gaining promotions, whether monetary or position.

Research Hypothesis. The research hypothesis was: ". . . persons with handicaps who have attained tenure and are in prime jobs, i.e., jobs which lead to promotion and career progression, will report that they received training in a combination of training settings, e.g., classroom/laboratory instruction succeeded by on-the-job training or in conjunction with on-the-job training. In Table 13, the investigator reports by frequency distribution that nineteen of the twenty-one jobs

Table 13

Identification of Training Settings
Which Led to Prime Jobs
N=24

	Prime Jobs	Training Setting (f) OJT	CL	COMB
005 061	Civil Engineer			1
076 107	Speech Pathologist			1
090 227	College Faculty Member			1
091 227	Secondary Education Teacher . .		1	1
094 227	Special Education Teacher . . .			1
099 167	Certif. Select. Sp.			1
110 117	Corporate Lawyer			1
159 117	Radio & TV Producer			1
160 167	Budget Accountant			1
165 067	Public Relations Sp.			1
169 167	Office Manager		1	1
183 117	Production Supt.	1		
195 107	Case/Social Worker			3
202 132	Transc. Secr. & Ofc. Mgr. . . .			1
210 367	Account-Information Bookkeeper .			1
213 685	Data Processing Operator			2
249 367	Evaluator			1
260 357	Agr. Cmsn. Agent	1		
274 357	Bldg. Eqp. & Sup. Mgr.	1		
	Total:	3	2	19

would lead to promotions and career progression. All twenty-one jobs were researched in the Occupational Outlook Handbook, 1978-79 Edition and the Dictionary of Occupational Titles, and the cited nineteen were deemed by the investigator to be jobs that would fit into existing career progression patterns and would lead to promotions in the work place. The potential career progression patterns were determined by ranking in numerical order the heirarchy of jobs by complexity and occupational group arrangement. First, an experienced personnel management

specialist ranked each occupation by group code (first three digits). Second, he ranked each occupation by complexity of functions (second three digits). These rankings provided a job ladder with a job-family arrangement. This arrangement permitted the investigator to compare within group relationships, to identify entry-level occupations, and to identify job linkages outside the occupational group which each worker could enter or transfer to based on their current skill inventory.

This table reports that nineteen (79%) of the prime job holders were prepared for their current jobs in a combination of training settings. Three (13%) of these respondents were trained in on-the-job settings, and two (8%) were trained in a classroom/laboratory setting. Therefore, the hypothesis appears to be tenable.

Job Placement Criteria. Throughout this study the investigator focused on identifying the criteria that were used by the respondents' training authorities for determining placement in a specified training setting. However, the investigator believed that it was also pertinent to identify some of the criteria which the respondents used to guide their job selection process. Therefore, in Section 9 of the first interview questionnaire, items were formulated to answer the questions: (1) Who am I?, (2) What were my needs?, and (3) What strategies did I use when seeking a job? The answers to these questions would identify the basic criteria which have been commonly used to guide the job seekers selection process (Herr & Cramer, 1979). In Table T4, the responses to these questions are ranked in percentages.

The data show that these respondents considered their ability to perform and their interest in the job to be more important than their

Table 14

The Values Placed on Job Placement Criteria
N=26

Criteria	%
1. Who am I?	
a. Ability	81
b. Interest	77
c. Aptitude	65
2. What were my needs?	
a. Independence	85
b. Economic	77
c. Geographic stability	58
d. Job accessibility	58
e. Fill self-perceived role	54
f. Career advancement	50
g. Career stability	50
h. Family needs	39
i. Social interaction	39
j. Job, fringe benefits	23
k. Fill role of someone admired	15
l. Fill role of an ideal person	12
m. Social conformance	12
3. What strategies did I use when seeking a job?	
a. Personal contact with employer	63
b. School placement agency	17
c. Media or training authority	8

aptitude for performing the job. Second, their desires to be independent and self-supporting are their greatest needs. And third, they believe that the best strategy for seeking a job is through personal contact with the employer.

Advocate Study

Respondents

The thirty-five participants in this study were professional people associated with work-study and classroom/laboratory training, vocational education administration and counseling, and curriculum planning and research in the training of persons with handicaps. The number of persons by state and place of employment were: twelve from the Commonwealth of Pennsylvania; seven from the District of Columbia; three from California, Ohio and Oregon; two from Delaware; and one each from Kansas, Michigan, New Hampshire, New Jersey and New York (see Figure 6). Fourteen of the thirty-five participants reported prior experience with handicapped persons. The participants' experiences by condition of handicap were five with physical, seven with cognitive, one with visual, and one with auditory.

Results of Survey

The information reported in this section was derived from data collected at national and state professional education conferences or "invited" seminars. The participants had been asked to choose the criteria which they believed should be used when selecting the training setting for persons with handicaps. Their choices of criteria are reported in Table 15.

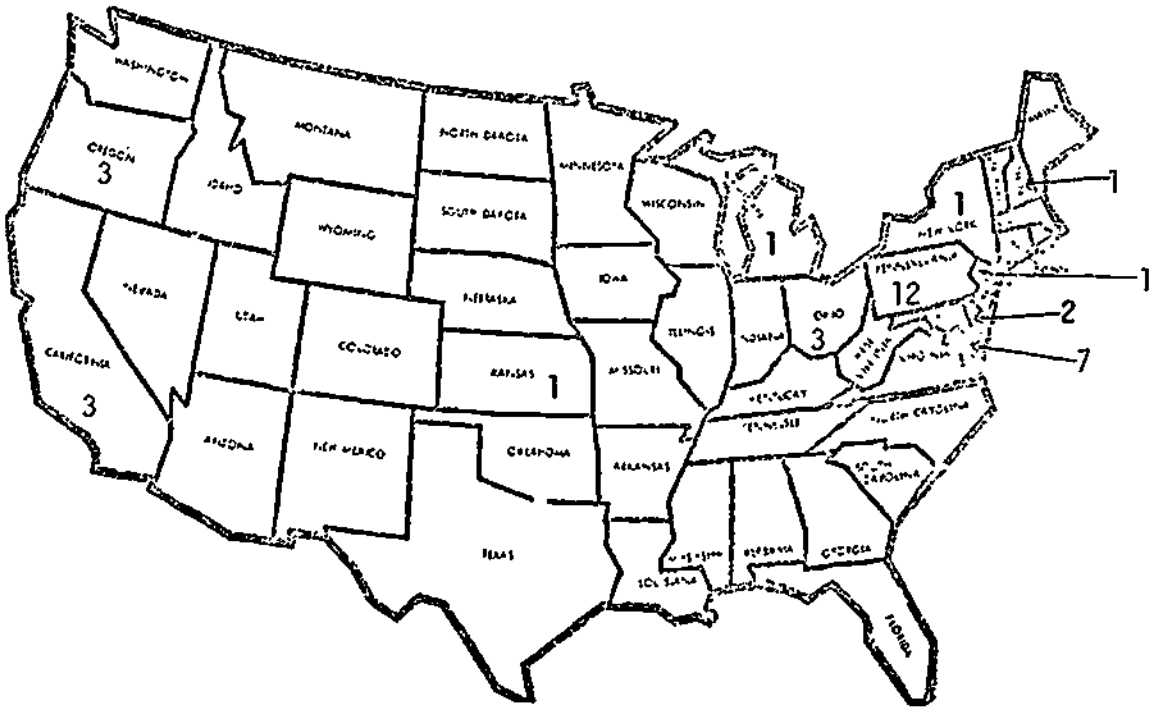


Figure 6. Respondents' location of employment (Advocate Study).

Table 15
Advocates' Ranking of Criteria Which Should Be Used
When Selecting the Training Setting
N=35

Re: No.	Criteria*	%
8	Evaluation	88
21	Quality Control	86
13	Number of Personnel to be Trained	83
11	Instrumentality	80
22	Reality of Atmosphere	80
2	Availability and Suitability of Physical Resources	77
1	Abilities and Aptitudes	71
7	Disabilities	71
15	Performance of Graduates	71
5	Cost	68
16	Persistence of Demand for Trained Personnel	68
19	Preferred Learning Modes	63
4	Complexity	60
3	Capability	57
18	Ports of Entry	57
6	Criticality	54
12	Need to Minimize Training Time	48
26	Uniformity	48
9	Frequency	43
24	Solicitude	43
14	Passage of Time	40
17	Philosophy and Policy	37
20	Prior Experience	37
23	Screening Device	34
25	State of the Business Cycle	34
10	History and Pragmatism	26

* See pages 51- 64 for descriptions.

The participants in this study appear to have ranked many of the criteria in patterns which are similar to those reported in the Authority and Worker Studies. For example: Evaluation and Instrumentality are at or near the top of the rankings in each study, and History and Pragmatism and Screening

Device are at or near the bottom. Further discussion of these results will be addressed in Chapter V.

Summary

In this chapter the results of three sub-studies were reported in relation to: first, the demographic data of the respondents; second, the nine research questions; and third, the two research hypotheses. Data were presented to test eight of the nine research questions and both of the hypotheses. At the close of the chapter there appeared to be similar ranking patterns of criteria in each sub-study, and it was clear that most of the revised criteria were considered to have been used or should have been used in the selection of the training settings for persons with handicaps.

CHAPTER V

DISCUSSION

The purposes of this study were threefold. First, to gain expert opinions about the characteristics of the training settings which were selected for persons with handicaps. Second, to obtain these opinions from training authorities and "impaired" workers. Third, to test the revised Evans et al. criteria and ascertain if the interviewed respondents perceived that these criteria were or should have been used when the training settings were chosen for the vocational development of handicapped persons. The preceding chapters of this report presented the following. The first chapter provided the background and statement of the problem and the identification of research questions and the research hypotheses to be tested. In the second chapter, there was a review of the literature which addressed barriers that hinder the training of persons with handicaps, roles of persons with handicaps in contemporary society and an indepth discussion of the criteria which were assessed in this study. The third chapter provided information about the design, method and procedures used in the conduct of the study, and Chapter Four reported the results. This chapter will summarize the study, report conclusions based on the study, and provide recommendations for future research.

Summary. In three sub-studies; Authority, Worker, and Advocate, the research was directed toward gathering information about the criteria that were believed to have been or should have been used for selecting the training setting for persons with handicaps.

In the Authority Study sixty-two training authorities were interviewed on two different occasions. First, in a face-to-face interview a profile of the training settings which were used for the training of persons with handicaps was described, and these criteria used for the selection of the training setting were identified. Second, in a telephone interview, fifty-one of the sixty-two respondents validated their use of the criteria. The information derived from these interviews provided three major results. First, on-the-job training and a combination of training settings were considered the two most appropriate methods to be used for the vocational development of persons with handicaps. Second, eighteen criteria were validated by more than fifty percent of the respondents to have been OFTEN to ALWAYS USED in the selection of the training settings. These were, in order of frequency of use:

Evaluation

Complexity

Disabilities

Number of Personnel to be Trained

Instrumentality

Preferred Learning Modes

Uniformity

Abilities and Aptitudes

Prior Experience

Quality Control

Criticality

Capability

Passage of Time

Performance of Graduates

Persistence of Demand for Trained Personnel

Cost

Availability and Suitability of Physical Resources

Frequency

Third, four criteria were reported by more than seventy percent of the respondents (under each condition of handicap) to have been OFTEN to ALWAYS USED in the selection of the training setting (see Tables 5, 6, 7 and 8). These were in alphabetical order:

Complexity

Evaluation

Number of Personnel to be Trained

Preferred Learning Modes

The research in the Worker Study was directed toward gathering information about the criteria that were believed to have been used for selecting the training setting of "impaired" workers. All twenty-six of these workers lived and worked in the state of Illinois and had been employed for twenty-four consecutive months or longer in their current employment. The majority of these respondents were workers with physical impairments. The respondents' occupations were viewed as the independent variable. The training settings and the identified criteria were viewed as the dependent variables. The two control variables were viewed as dependent variables. The two control variables were viewed as handicap condition and tenure.

There were five major results from this study. First, nine criteria were reported by more than fifty percent of the respondents to have been

OFTEN to ALWAYS USED in the selection of their training settings. These were, in order of frequency of use:

Abilities and Aptitudes

Evaluation

History and Pragmatism

Complexity

Philosophy and Policy

Disabilities

Instrumentality

Persistence of Demand for Trained Personnel

State of the Business Cycle

Second, eight criteria were considered to have been Less Frequently Used since only thirty-four percent or less of the respondents identified their use to be OFTEN to ALWAYS USED. These criteria were:

Need to Minimize Training Time

Solicitude

Availability and Suitability of Physical Resources

Passage of Time

Screening Device

Preferred Learning Modes

Criticality

Capability

Third, twelve criteria which respondents believed Should Have Been Used More Frequently were:

Availability and Suitability of Physical Resources

Preferred Learning Modes

Capability

Criticality

Frequency

Performance of Graduates

Prior Experience

Instrumentality

Quality Control

Evaluation

Passage of Time

Two important observations should be noted here. First, two of the nine criteria appearing in the first group (which identified those criteria which had been used in the selection of the respondents' training settings) also appeared in the above Should Have Been Used More Frequently group. They were Instrumentality and Evaluation. Second, five of the eight criteria which were reported as having been less frequently used also appeared in the Should Have Been Used More Frequently group. These were Availability and Suitability of Physical Resources, Preferred Learning Modes, Capability, Criticality, and Passage of Time.

The fourth major result of this study suggested that both the "complex" and "most complex" job competencies were most frequently developed in settings which were a combination of classroom/laboratory and on-the-job training.

The fifth major result of this study suggested that a twenty-eighth criterion has been potentially identified, i.e., the Job Selection Process should be considered since it guided the respondents of this study into eventual job placement and was comprised of (a) a self-appraisal of their ability, interest, and aptitude, (b) a recognition of needs (independence, economic, geographical stability, job accessibility, fulfillment of self-perceived role, career advancement and stability, etc.), and (c) job seeking strategies (direct contact with employer, use of school placement agency, and/or media and training authorities).

The Advocate Study was an attempt to obtain an additional set of observations and assessments of the criteria. The thirty-five participants in this study were surveyed at national and state professional education conferences or "invited" seminars. The results of this study, when compared with the Authority and Worker studies, provides a major result. Comparing Tables 4, 11 (Column: "Should Use") and 15, the following patterns were observed. The Authority Study, Table 4, and the Worker Study, Table 11 ("Should Use"), when compared, show the selection of the following criteria by more than seventy percent of the respondents:

Complexity

Evaluation

Preferred Learning Modes

Uniformity

By comparing the Worker Study, Table 11 ("Should Use") and the Advocate Study, Table 15, a different set of patterns are observed. Seventy percent of the respondents in these two groups chose the following criteria:

Evaluation

Performance of Graduates

Quality Control

When comparing selections between Advocate and Authority studies (Tables 4 and 15), seventy percent of these respondents chose the following criteria:

Disabilities

Evaluation

Instrumentality

Number of Personnel to be Trained

When the three sub-studies are compared, based on seventy percent of the responses, the criterion Evaluation was unanimously chosen.

Conclusions. Several conclusions can be drawn based on the results of these studies. The Authority Study: First, the three modes of training discussed in this report are affected significantly by the tone of social interaction among the three principal members of those settings: (1) trainer vs. trainee, (2) peer group vs. trainee, and (3) trainer vs. peer group. A cohesive group in a learning setting is composed of members who work together for a common interest and are willing to participate in group tasks and experiences that normally include the anxieties and frustrations which accompany knowledge processing in human skill development (Stancato, 1979). When training handicapped students for a vocation, the training setting has been complicated by the training authority's lack of knowledge about how best to develop the learning environment to create the most effective climate for instruction and learning (Bottoms & Scott, 1976). Therefore, training authorities should be aware of the noncohesive potentialities of the "alien"

training setting that is conceived and populated primarily by the nonhandicapped with their own (nonhandicapped) values and mores for the training of persons with handicaps (Weisman, 1976). The investigators concluded that these "interactions" must be assessed before selecting the training setting. Consequently, Social Cohesiveness/Work Adjustment is identified to be the twenty-seventh criterion. Second, the training setting chosen for the vocational development of persons with handicaps must be thoroughly evaluated if the intended goal of the training is job placement. Similarly, the individual to be trained must be thoroughly assessed. The criteria identified and quantified in this study provide the professional practioners who manage and develop vocational programs for persons with handicaps a means to measure the advantages and disadvantages of each mode of instruction. Now, the method which is the most effective and relevant to the trainee are potentially answerable.

In the Worker Study several conclusions can be drawn. First, in this study the respondents were not the "disabled" or "handicapped" workers who are typically reported in the professional literature as clients or workers difficult to place in schools and/or the work place. These workers may be "impaired" in the public eye, but they have demonstrated their ability, zeal and perseverance to perform to the same work standards as their nonhandicapped coworkers.

Unfortunately, the identification of the factors in their lives which were sufficiently significant to bring them to this juncture goes beyond the design of this study. However, the investigator has the opinion that all twenty-six respondents had several common threads running through their

backgrounds: (1) a strong family support system, (2) an impairment which was not allowed to "up-stage" their ability to perform, (3) a strong desire to work, (4) self-confidence, and (5) an understanding of the efficacy of work. Many of these variables were identified by Kolstoe (1961) as psychological and work habit variables which lead to success in obtaining and keeping jobs.

Second, the training settings for these workers were far above average. There appeared to be strong linkages from the training setting to the work place because of the physical resources and capabilities provided by the training or education agency or because of the workers self-initiated learning experiences. Whichever source of training provided the linkage, the important fact was that most workers believed the preparation for their current employment occurred in a "combination" setting. It could be presumed that their employer was willing to hire them because they could correctly perform the job tasks of the position prior to job entry. Consequently, their employer had no training investments to make and gained a "seasoned" employee who just happened to be "different."

Third, a majority of the workers interviewed in this study (twenty-two in all) had had some form of part-time employment before they entered full-time employment, and thus had had an opportunity to work in real world competitive environments.

Fourth, the criteria were applicable in the decision-making process of choosing a training setting for the respondents in this study, i.e., "impaired" workers. Although it was not proved in this study, the investigators believe that all of the criteria should be appraised when choosing

the training setting and that the appropriate criteria should be identified for each person based on personal differences, choice of occupations, and the available settings for education and/or training.

Recommendations and Suggestions for Future Research. The results of this study have prompted questions that need to be answered if educators, in both the academic and vocational arenas, are going to be able to make appropriate decisions about individualized training plans (programs) for handicapped youth and adults in the future. Therefore, the investigators recommend that several studies be conducted. First, to survey teachers in secondary and post-secondary vocational programs, e.g., programs designed for "pre-job entry," to ascertain (1) what criteria are presumed to be used when choosing a training setting for the handicapped student/trainee, and (2) what criteria should be used and why. The results of such a study should provide advocates and concerned educators the necessary information to plan both pre-service and in-service training for educators, parents, and employers on how best to train persons with handicaps to increase job-entry potential and to gain job placement. Second, there is a need for a study to measure the effects of advocate or family support or encouragement upon the trainee's attitude towards seeking work and independence. The data in this study seem to imply that the workers' self-percention of ability strongly influenced the workers' attainment of independence. Indeed this was the second most important factor affecting independence. The investigators believe that the experiences of these respondents in the family unit may have encouraged them to overcome a variety of barriers in pursuit of work and independence. Therefore, the

study of family, advocate, and other sources of support and encouragement seems warranted. Third, a major impediment to this study was the restrictions imposed by the Family Educational Rights and Privacy Act (FERPA). FERPA prevents access to personally identifiable data which would allow educational researchers the options of sampling a population, for example, by ethnicity and handicap (Federal Register, June 17, 1976). Therefore, a study is needed to find more effective ways of sampling a population, such as impaired workers, under current laws and regulations.

Fourth, what remains to be explored from the initial purpose of the study is to obtain definite and firsthand knowledge of how these criteria vary with the type of handicap. It may be possible to obtain some of this information from the collected data available from the computer. Additional information could be gathered from the use of an instrument designed to show how the criteria would vary with the type of handicap.

Fifth, another study in which the question of the best mix of training modes (classroom/laboratory, on-the-job, or a combination) can be determined is through the use of a training mode task analysis of the identified criteria. Such a program would involve the comparison and evaluation of the criteria with each of the training modes and a set of tasks common to a segment of the jobs in which many "impaired" workers are employed. A methodology can be developed in a rather straightforward fashion that enables the manager/trainer to identify the effectiveness of each criterion and the training mode used in the development of each task/skill. Such an instrument could measure to a limited degree the effectiveness of the criterion and compare one training mode with that of another against tasks

the trainee may be called upon to perform. A study of this form may be a step towards relating the criteria to the training mode effectiveness and to the job performance.

Sixth, a future study should try to determine what benefits and liabilities caused the administrators to take their respective positions regarding training modes. The effectiveness of the training programs should be investigated as well as their objectivity. The reasons why the job skills can best be learned through the manager's own training programs need to be investigated. Such a study could lead to further studies about the potential cost benefits from the application of any or all of the criteria.

The question of how far the abilities and aptitudes of the handicapped individual can be developed was not addressed in the study. Seventh, this is a need to investigate the potentials of persons with handicaps for achieving higher levels of occupational skills and the training methods that will best help them achieve these goals -- hopefully through the use of any or all of the identified criteria.

Eighth, investigate "How do criteria vary with type and severity of handicap?"

Ninth, develop questionnaires using language that is appropriate to the population being interviewed.

Tenth, investigate how the use of the criteria differ between educators who follow P. L. 94-142 (where training is general) and employers who follow the Rehabilitation Act (Sections 503 and 504) and the training is job specific.

Eleventh, by investigation, identify what criteria should be used by trainees and trainee-related oriented counselors. (These criteria are not necessarily the same as those used by trainers and trainer-oriented counselors.)

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APPENDIX A

TRAINING AUTHORITIES QUESTIONNAIRE
(Face-to-Face Interview)

Revision 11/27/79

COVER PAGE
Study # ____
Quest # 35

VOCATIONAL AND TECHNICAL EDUCATION
BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF ILLINOIS

Geographical Location: _____ Job Category: _____ Organization Category: _____

Name (last, first, m.i.) _____

Job Title _____

Address (when applicable, organization name) _____

_____

Telephone (AC ___) _____

Interview Schedule

Contacted: __/__/__ Interview Scheduled: YES NO

Interviewer: _____ Day and date: ___ __/__/__

_____ Time: _____

Interview Completed: __/__/__ Location: _____

Communications

Ltr. of confirmation: __/__/__ Ltr. of appreciation: __/__/__

Remarks:

INTRO
OJT
CL
COMB

Revised
11/27/79

FOR OFFICE USE
Quest. # 35
Study # _____

Deck 1
1-3
4-5

VOCATIONAL AND TECHNICAL EDUCATION
BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF ILLINOIS

CRITERIA, INSTRUCTION OF PERSONS WITH HANDICAPS

(Phase-I--Questionnaire)

1. Background Information of the Respondent

a. Job title _____

_____

[OTC ___] 6-8

b. Total months in present job _____ [_____] 9-12

c. Organization _____

_____

[_____] 13-14

d. Address _____

_____

[_____] 15-16

e. Respondent category (circle one)

- Group 0 Counselor. 1 17
- Group 1 Administrator. 2
- Group 2 Trainer. 3
- Group 3 Employer 4

2. Handicapping Condition of Trainees

a. Area of handicap:

(1) Physical deficit - loss of ability to move part or parts of body, paralysis.

(2) Cognitive deficit - mental retardation.

(3) Visual deficit - loss of peripheral vision, restriction of visual field, blind in both eyes.

(4) Auditory deficit - hard of hearing, deafness with understandable speech, deafness and unable to speak clearly.

(5) Emotional deficit - mental or emotional illness, history of treatment for either mental or emotional illness.

(6) Speech deficit - aphasia, articulation errors, stuttering.

(7) Multiple deficit (specify). _____

_____

_____

b. Level of handicap:

(1) Mild - capable of independent functioning when provided guidance and training.

(2) Moderate - usually capable of attaining semi-independent functioning when considerable training and assistance is provided.

(3) Severe - usually remains dependent, requiring training in all areas of functioning, e.g., basic hygiene, language, and social competence.

c. Conditions of Trainees (circle ONLY one):

Area of Handicap	Level of Handicap			
	Mild	Moderate	Severe	
(1) Physical	01	02	03	18-19
(2) Cognitive	04	05	06	
(3) Visual	07	08	09	
(4) Auditory	10	11	12	
(5) Emotional	13	14	15	
(6) Speech	16	17	18	
(7) Multiple	19	20	21	

3.- Description of Training Conducted

Note: The respondent reads the descriptions of on-the-job training (OJT) and formal technical training - classroom/laboratory (CL) and chooses the most accurate description for the type of training provided including a "combination" (COMB) when both types of training are used. Select only one type of training, i.e., OJT, CL, or COMB.

Definitions:

"On-the-job training" (OJT) encompasses all self-study knowledge and job experience acquired by a trainee while working at his or her assigned job.

"Formal technical training" (CL) is traditional or conventional classroom or laboratory instruction in which the instructor and student regularly meet at a specific time and place for the primary purpose of teaching and learning.

The objective of both of these methods of training is assumed to be the mastery by the trainee of specific knowledges and skills needed on a job. In OJT the teaching and learning usually has a lower priority than producing goods or services, and in CL the production of goods and services always has lower priority than does teaching and learning (Evans, Holter, and Stern, 1976).

☐ AM

Time interview began: _____ ☐ PM

4. Training Provided (circle ONLY one)

a. Type of training provided?

OJT. . . 1 20

CL . . . 2

COMB . . 3

[1 2 3 4 5] 21

comment(s) _____

_____

_____

b. What is the training designed to accomplish?

Upgrading current employees. 1 22

Entry training for new employees . . . 2

Combination. 3

[1 2 3 4 5] 23

comment(s) _____

_____

_____

c. Training leads

to entry level performance on a specific job. 1 24

to greater responsibility (progression) on a specific job 2

to entry level and to greater responsibility on a specific job. . 3

to transfer to a related occupation 4

[1 2 3 4 5] 25

comment(s) _____

_____

_____

d. Training is designed for employment

on the same job and for the same employer 1 26

in the same occupation, with the same employer, but different job setting 2

in the same occupation but different employer 3

all of the above. 4

[1 2 3 4 5] 27

comment(s) _____

_____

_____

e. Is training given by a person who has considerable experience in the occupation being taught?

Yes. . . 1 28

No . . . 2

[1 2 3 4 5] 29

comment(s) _____

_____

_____

f. The training is provided by

the training station employer?

Yes. . . 1 30

No . . . 2

the eventual employer?

Yes. . . 3 31

No . . . 4

both of the above?

Yes. . . 1 32

No . . . 2

[1 2 3 4 5] 33

comment(s) _____

_____

_____

g. Does the method of training require written materials for the trainee to study?

Yes. . . 1 34

No . . . 2

[1 2 3 4 5] 35

comment(s) _____

_____

_____

5. Institutional Criteria

a. Cost:

(1) The average cost of training one graduate is

($)_____ 36-40

[1 2 3 4 5] 41

(2) The training method which is the least cost-effective is

OJT. . . 1 42

CL . . . 2

COMB . . 3

[1 2 3 4 5] 43

(3) With adequate financial support the most cost-effective training can best be accomplished using

OJT. . . 1 44

CL . . . 2

COMB . . 3

[1 2 3 4 5] 45

(4) Existing financial constraints encourage the use of

OJT. . . 1 46

CL . . . 2

COMB . . 3

[1 2 3 4 5] 47

comment(s) _____

_____

_____

b. Capability:

(1) The number of qualified applicants for each vacant position on the training staff is

OJT _____ 48-50

CL _____ 51-53

COMB_____ 54-56

[1 2 3 4 5] 57

(2) The most capabable instructors for training personnel to accomplish tasks are usually found in

OJT 1 58

CL. 2

COMB. 3

NO DIFFERENCE . . 4

[1 2 3 4 5] 59

comment(s) _____

_____

_____

c. Philosophy and Policy:

(1) The expectations of your administrator for the success of your training program are

	Low		Med.		High	Unk.	
(for OJT)	1	2	3	4	5	8	60
(for CL)	1	2	3	4	5	8	61
(for COMB)	1	2	3	4	5	8	62

[1 2 3 4 5] 63

(2) Based on the policy of your organization the type of training preferred is

OJT 1 64

CL. 2

COMB. 3

NO PREFERENCE . . 4

[1 2 3 4 5] 65

comment(s) _____

_____

_____

d. Availability/Suitability of Physical Resources:

(1) What percent of the equipment and/or facilities used by the trainee are typical or identical to those they will encounter on the job?

Percent of probability

OJT _____ 66-68

CL _____ 69-71

COMB_____ 72-74

[1 2 3 4 5] 75

(2) The use of actual job conditions is usually more feasible in

OJT. . . 1 76

CL . . . 2

COMB . . 3

[1 2 3 4 5] 77

comment(s) _____ 78-79/BK

_____

_____

e. Reality of Atmosphere:

(1) Trainees are trained in a work atmosphere (i.e., breaks, work shifts, etc.) that is typical or identical to the conditions of the actual job

Percent of time — 80 | 1 | 1-3 | D U P

OJT _____ 4-6

CL _____ 7-9

COMB _____ 10-12

[1 2 3 4 5] 13

(2) Realism of training can best be created with

OJT. . . 1 14

CL . . . 2

COMB . . 3

[1 2 3 4 5] 15

comment(s) _____

_____

_____

f. Screening Device:

(1) What percentage of trainees are required to complete screening (e.g., security check, physical-psychological exams, etc.) before being allowed to complete/graduate from the program?

Percent _____ 16-18

None 108

Unknown 998

[1 2 3 4 5] 19

(2) The use of training as a screening device for both hiring and promotion can best be accomplished through

OJT. . . 1 20

CL . . . 2

COMB . . 3

[1 2 3 4 5] 21

comment(s) _____

_____

_____

g. History and Pragmatism:

(1) Consider the following definitions:

(a) Tradition means "we've always done it this way."

(b) Data means "research indicates that this is the most efficient way to do it."

(2) An organization which usually uses OJT tends to choose that method of training on the basis of

TRADITION. . . 1 22

DATA 2

BOTH 3

UNKNOWN. . . . 8

[1 2 3 4 5] 23

(3) An organization which usually uses CL tends to choose that method of training on the basis of

TRADITION. . . 1 24

DATA 2

BOTH 3

UNKNOWN. . . . 8

[1 2 3 4 5] 25

(4) An organization which usually uses a COMB tends to choose that method of training on the basis of

TRADITION. . . 1 26

DATA 2

BOTH 3

UNKNOWN. . . . 8

[1 2 3 4 5] 27

comment(s) _____

_____

_____

h. Evaluation of Training:

An appraisal of the quality of training can most economically be assessed in

OJT. . . 1 28

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 29

comment(s) _____

_____

_____

6. Quality and Speed Related Criteria

a. Number of Trained Personnel Required:

(1) The largest number of personnel (of all types) actually in training at one time on your site is

	Number of Personnel	
OJT	_____	30-32
CL	_____	33-35
COMB	_____	36-38
[1 2 3 4 5]		39
TOTAL	_____	40-44

(2) A large flow of trainees can best be trained through

OJT. . . 1 45

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 46

comment(s) _____

_____

_____

b. Persistence of Demand for Trained Personnel:

(1) Trained personnel for jobs in this occupational category will be needed for

years	_____	47-48
unknown	98	
[1 2 3 4 5]		49

(2) The average annual requirement for trained personnel to fill jobs in this occupational category is

persons _____ 50-52

unknown 998

[1 2 3 4 5] 53

(3) A substantial demand for this job skill has existed for

years _____ 54-55

unknown 98

[1 2 3 4 5] 56

(4) When trained personnel are required in the job market over an extended period of time, the best method of training is

OJT. . . 1 57

CL . . . 2

COMB . . 3

[1 2 3 4 5] 58

comment(s) _____

_____

_____

c. Need to Minimize Training Time:

(1) The average number of months to train a trainee is

OJT _____ 59-60

CL _____ 61-62

COMB_____ 63-64

[1 2 3 4 5] 65

(2) When time for training is short, best results can be obtained via

OJT. . . 1 66

CL . . . 2

COMB . . 3

[1 2 3 4 5] 67

comment(s) _____

_____

_____

d. State of the Business Cycle:

(1) The percent of trained personnel earning a competitive wage within 12 months after completion of the training received in your program is

Percent of Personnel

OJT _____ 68-70

CL _____ 71-73

COMB_____ 74-76

[1 2 3 4 5] 77

(2) When the demand for workers is high in this occupation, training for it can best be supplied through

CJT. . . 1 78

CL . . . 2

COMB . . 3

[1 2 3 4 5] 79

comment(s) _____

_____

_____

7. Job Related Criteria

a. Frequency:

(1) In choosing tasks to be taught in a training program it is usual to teach tasks which are performed in a job by almost all workers and not to teach tasks which workers rarely perform.

(2) What percent of tasks taught in your program are performed on-the-job by the average graduate? 80 | 2 1-3 | DUP

percent _____ 4-6

[1 2 3 4 5] 7

(3) Tasks which are performed on-the-job by graduates at least once every week are best taught by

OJT. . . 1 8

CL . . . 2

COMB . . 3

[1 2 3 4 5] 9

comment(s) _____

_____

_____

b. Criticality:

(1) The percent of tasks in your training program that involves risk to or the safety of your trainees, equipment, or facilities is

Percent of Task

OJT _____ 10-12

NONE 108

CL _____ 13-15

NONE 108

COMB _____ 16-18

NONE 108

[1 2 3 4 5] 19

(2) Skills involving high risk may be best acquired through

OJT. . . 1 20

CL . . . 2

COMB . . 3

[1 2 3 4 5] 21

comment(s) _____

_____

_____

c. Uniformity:

(1) The importance of having a task performed uniformly, i.e., in exactly the same way by all trainees is

	Unimportant		Borderline		Important	Unknown	
(in OJT)	1	2	3	4	5	8	22
(in CL)	1	2	3	4	5	8	23
(in COMB)	1	2	3	4	5	8	24

[1 2 3 4 5] 25

(2) Greater uniformity of trainee Job/task performance can best be attained through

OJT. . . 1 26

CL . . . 2

COMB . . 3

[1 2 3 4 5] 27

comment(s) _____

_____

_____

NOTE: Interviewer has the option of suggesting to the respondent that a five-ten minute pause be taken at this point.

d. Complexity:

(1) The average number of days required for a trainee to learn a <u>complex</u> task to acceptable quality standards is

OJT _____ 28-30

CL _____ 31-33

COMB_____ 34-36

[1 2 3 4 5] 37

(2) The method of training best suited for teaching complex tasks is

OJT. . . 1 38

CL . . . 2

COMB . . 3

[1 2 3 4 5] 39

(3) If the job is relatively easy to learn, the skill can best be developed through

OJT. . . 1 40

CL . . . 2

COMB . . 3

[1 2 3 4 5] 41

comment(s) _____

_____ _____

_____

e. Judgement of Performance of Graduates:

(1) Assuming that graduates of this program are receiving a competitive wage upon employment,

(a) how many months after employment are handicapped graduates usually promoted to a higher status job?

months _____ 42-43

unknown 98

[1 2 3 4 5] 44

(b) what percentage of all graduates are promoted to a higher status job after cited period above?

percent_____ 45-47

unknown 998

[1 2 3 4 5] 48

(c) what percentage of handicapped graduates receiving OJT are promoted to a higher status job after cited period above?

percent_____ 49-51

unknown 998

[1 2 3 4 5] 52

(d) what percentage of handicapped graduates receiving CL are promoted to a higher status job after cited period above?

percent_____ 53-55

unknown 998

[1 2 3 4 5] 56

(e) what percentage of handicapped graduates receiving COMB are promoted to a higher status job after cited period above?

percent_____ 57-59

unknown 998

[1 2 3 4 5] 60

(2) Which training method produces the most competent employees after cited period above?

OJT. . . 1 61

CL . . . 2

COMB . . 3

[1 2 3 4 5] 62

comment(s) _____

_____

_____

f. Passage of Time:

(1) What percentage of trainees who have completed training are retained in the training program because an actual job is not readily available?

percent_____ 63-65

none 108

unknown 998

[1 2 3 4 5] 66

(2) The usual time interval between completion of the training program and actual job placement is

days _____ 67-70

none 1008

unknown 9998

[1 2 3 4 5] 71

(3) An unacceptable loss of potential job efficiency occurs when the time interval between graduation and actual job entry exceeds a given period of time. The loss of job efficiency for your graduates occurs after

days _____ 72-74

unknown_____

[1 2 3 4 5] 75

(4) What percentage of graduates have experienced this loss of job efficiency?

percent_____ 76-78

none 108

unknown 998

[1 2 3 4 5] 79

(5) What percentage of skills require retraining because of this time interval?

80 | 3 1-3 | D U P

percent_____ 4-6

none 108

unknown 998

[1 2 3 4 5] 7

(6) Graduates do not require (or seldom require) retraining because of this time interval, when they receive training via

OJT. . . 1 8

CL . . . 2

COMB . . 3

[1 2 3 4 5] 9

comment(s) _____

_____

_____

g. Instrumentality:

(1) The percent of tasks that your graduates will be expected to perform that require skills in reading, computing, and/or speaking is

percent_____ 10-12

none 108

unknown 998

[1 2 3 4 5] 13

(2) Job tasks which require basic educational skills are best taught through

OJT. . . 1 14

CL . . . 2

COMB . . 3

[1 2 3 4 5] 15

comment(s) _____

_____

_____

h. Quality Control:

(1) The average time required for a trainee to learn to produce work of acceptable quality using the OJT method is

days _____ 16-18

unknown 998

[1 2 3 4 5] 19

using the CL method is [Enter data on p. p. 30, Col. Codes 525 - 528.]

~~days~~ _____ 20-21

~~unknown 998~~

~~[1 2 3 4 5]~~ 22

using the COMB method is

days _____ 23-25

unknown 998

[1 2 3 4 5] 26

(2) Training for producing work of acceptable quality in your agency is

	Difficult		Borderline		Easy	Unknown	
(via OJT)	1	2	3	4	5	8	27
(via CL)	1	2	3	4	5	8	28
(via COMB)	1	2	3	4	5	8	29

[1 2 3 4 5] 30

comment(s) _____

_____

_____

i. Ports of Entry:

(1) In which jobs for which you provide training is the trainees entry into the job controlled by a licensing board or agency?

None, skip to Q. 8. . . [998] 31-33

(a) Job: _____

OTC: _____ 34-36

(b) Job: _____

OTC: _____ 37-39

(c) Job: _____

OTC: _____ 40-42

[1 2 3 4 5] 43

(2) For each such job does the agency regulate the amount of training required for job entry?

(a) Job : _____

[OTC: _____] 44-46

Yes . . . 1 47

No . . . 2

Unk. . . 8

(b) Job: _____

[OTC: _____] 48-50

Yes . . . 1 51

No . . . 2

Unk. . . 8

(c) Job: _____

[OTC: _____] 52-54

Yes . . . 1 55

No . . . 2

Unk. . . 8

[1 2 3 4 5] 56

(3) If an agency specifies the type of training, which do they specify for each job?

(a) Job: _____

[OTC: _____] 57-59

OJT. . . 1 60

CL . . . 2

COMB . . 3

UNK. . . 8

(b) Job: _____

[OTC: _____] 61-63

OJT. . . 1 64

CL . . . 2

COMB . . 3

UNK. . . 8

(c) Job: _____

[OTC: _____] 65-67

OJT. . . 1 68

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 69

comment(s) _____

_____

_____

8. Trainee Background Criteria

a. Preferred Learning Method(s):

(1) Which training method is preferred by the trainees for learning the skills of the job?

OJT. . . 1 70

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 71

(2) Which training method have you preferred for learning the skills of your job?

OJT. . . 1 72

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 73

comment(s) _____

_____

_____

b. Disabilities:

(1) Trainees with physical skill deficits can learn to master tasks better through

OJT. . . 1 74

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 75

(2) Trainees with cognitive skill deficits can learn to master tasks better through

OJT. . . 1 76

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 77

(3) Trainees with visual deficits can learn to master tasks better through

OJT. . . 1 78

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 79

(4) Trainees with auditory deficits can learn to master tasks better through 80|4 1-3|DUP

OJT. . . 1 4

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 5

(5) Trainees with multiple deficits can learn to master tasks better through

OJT. . . 1 6

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 7

comment(s) _____

_____

_____

c. Abilities and Aptitudes:

(1) Trainees who acquire skills slowly can be best trained to perform tasks of this job through

OJT. . . 1 8

CL . . . 2

COMB . . 3

UNK. . . 8

[1 2 3 4 5] 9

comment(s) _____

_____

_____

d. Prior Experience:

(1) The percent of job relevant task performance behaviors which the "average" trainee has before entering

(a) Unknown, skip to 8d(2). . . 998 10-12

(b) OJT training is . . .percent____ 13-15

none 108

(c) CL training is. . . .percent____ 16-18

none 108

(d) COMB training is. . .percent____ 19-21

none 108

[1 2 3 4 5] 22

(2) Trainees that have these pre-training performance behaviors can best be trained through

OJT. . . 1 23

CL . . . 2

COMB . . 3

UNK. . . 8

(1 2 3 4 5) 24

comment(s) _____

_____

_____

9. . . . using the CL method is

days ____ 25-27

unknown 998

(1 2 3 4 5) 28

29-79/BK

80|5

(FOLD/CLIP-OFF HERE)

RESPONSE CONFIDENCE CODE

1	2	3	4	5
Firm	Changed	Unsure	Delayed	Refused

APPENDIX B

TRAINING AUTHORITIES QUESTIONNAIRE
(Telephone Interview)

VOCATIONAL AND TECHNICAL EDUCATION
BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF ILLINOIS

For Office Use	Deck 1
Quest. #	1-3
Study # 335	4-6

Revision
4/28/80
I

VALIDATION OF DECISION-MAKING CRITERIA (TRAINING AUTHORITIES)

- Questionnaire-

Section I - Administrative

1. Name (last, first, m.i.) _____

2. Geographical Location _____ [ ] 7-8

3. Respondent Category: 9

Group 0	Counselor	1
Group 1	Administrator.	2
Group 2	Trainer	3
Group 3	Employer	4

4. Condition of Trainees' Handicap: 10

Physical	1
Cognitive	2
Visual	3
Auditory	4

5. Type of Training Provided: 11

On-the-job	1
Classroom/Laboratory.	2
Combination	3

6. Definitions:

"Training" is the minimum acceptable personal development required for job placement or job advancement. It involves the place, time and methods that are essential to develop physical and mental skills, knowledge and attitudes.

"On-the-job training" (OJT) encompasses all knowledge and job experience acquired by a trainee as a result of working at her/his assigned job.

"Classroom/laboratory training" (CL) is traditional or conventional classroom or laboratory instruction in which the instructor and student regularly meet at a specific time and place for the primary purpose of teaching and learning.

"Combination" (COMB) is both OJT and CL methods used together for individual development.

"Handicapping condition":

Physical - loss of ability to move part or parts of body.

Cognitive - mental retardation.

Visual - loss of peripheral vision. restriction of visual field, or blind in both eyes.

Auditory - hard of hearing or deaf in both ears, deafness with or without understandable speech.

Section II - Criteria for Placement of Persons with Handicaps in a Specified Training Setting

Listed alphabetically in this section are the "decision-making" criteria which administrators, counselors, employers and instructors have reportedly used when determining the placement of persons with handicaps in the "least restrictive" vocational training setting. Please evaluate each criterion by circling the numerical value on the seven-point scale which indicates the extent to which you use the criterion when selecting the training setting for persons with handicaps. For example:

7: Always Used 6: Very Often Used 5: Often Used 4: Sometimes Used 3: Not Often Used 2: Not Very Often Used 1: Never Used

Hence:

"a given criterion: . . . . . 7:(6)_5:_4:_3:_2:_1:_

A selected position of "6" means that you very often use the criterion.

Criteria	Not Used 7:_6:_5:_4:_3:_2:_1:_ Not Used	
A. Abilities and Aptitudes - the choice of training method has often been determined by the abilities and aptitudes of trainees. The expected development of individuals in a specific aptitude is considered by most experts to be an educated guess. Consequently, this makes difficult the choice of training methods for individuals according to their abilities and aptitudes	7:_6:_5:_4:_3:_2:_1:_	12
B. Atmosphere (Reality of ...) - creation of a simulated work setting where factors pertaining to the pressures of the work site such as development of attitudes toward shift work, performing work on holidays, working under pressures of anxiety, and responding to job environmental pressures of too little time, and too many demands.	7:_6:_5:_4:_3:_2:_1:_	13
C. Business Cycle (State of ...) - the extent to which the economy is able to support full employment for all those desiring to work. "The health of the economy affects everyone, but the impacts are greatest for the groups in the labor force that are least prepared for or capable of work and least desired by employers." (Levitan & Taggart, 1977, p. 95)	7:_6:_5:_4:_3:_2:_1:_	14

Criteria	Used 7:_6:_5:_4:_3:_2:_1:_ Not Used	
D. Capability - maximum number of personnel who can be in training at any point in time without causing "unacceptable" degradation in the quality of skills attained and without causing "unacceptable" loss in productivity	7:_6:_5._4:_3:_2:_1:_	15
E. Complexity - most teachers/instructors believe there are two major components to learning difficulty: first, the difficulty of the task and second, the difficulty of learning due to trainee characreristics. For example: complex rasks are usually more diffieulr to learn beeause of the importanee to marry principles and proeedural sequenees while developing moror skills	7:_6:_5:_4:_3:_2:_1:_	16
F. Cost - relaring to faeilities, personnel, resourees, materials, equipment, ete..	7:_6:_5:_4:_3:_2:_1:_	17
G. Criticality - for example, if a task must be aceomplished in an emergency and if the probability of being able to perform the task adequately without training is low, a major question may be which method of rraining will best prepare the trainee to perform essenrial skills under high risk eonditions.	7:_6:_5:_4:_3:_2:_1:_	18
H. Demand (Persistence of ... for trained personnel) - the long-term job requirement for trained workers may influenee the use of one rraining setting over another.	7:_6:_5:_4:_3:_2:_1:_	19
I. Disabilities - it is believed that a trainee's type of disability will have a significanr influence upon the length of time required ro attain a desired level of eompetenee. Therefore, the choice of training setting will be influenced by the trainee's handicap.	7:_6:_5:_4:_3:_2:_1:_	20
J. Evaluation - Appraisal of the quality of training provided during the course of insrruction	7:_6:_5:_4:_3:_2:_1:_	21
K. Frequency - tasks thar are performed frequently by most job incumbents at a given skill level are prime candidates for inclusion in most training programs, and conversely, tasks that are performed infrequently, should be eliminated from some training programs.	7:_6:_5:_4:_3:_2:_1:_	22
L. History and Pragmatism - empirical data are seldom used when deciding whether to teach a competenee on-the-job or in a classroom/laborarory setting. Some training authorities use their experienee in deeiding which training method to use in a partieular case. However, there are authorities from the other "camp" who chose the training method based on tradition, i.e. "they had always done it that way".	7:_6:_5:_4:_3:_2:_1:_	23

Criteria	Used 7:_6:_5:_4:_3:_2:_1:_	Not Used
M. Instrumentality - refers to skills in reading, computing and communicating which are difficult to teach in conjunction with most occupational/vocational training programs. The kinds of jobs which will be available to the trainee should be analyzed to determine which adjunct skills are necessary for further learning or for adapting to job changes.	7:_6:_5:_4:_3:_2:_1:_	24
N. Learning Modes (Preferred ...) - the trainee's preference for a specific method of training to acquire specified competencies should be taken into consideration when the circumstances permit.	7:_6:_5:_4:_3:_2:_1:_	25
O. Passage of Time - the time interval between completion of training and the initial performance at work may have an impact on qualitative, long-term performance on-the-job. Some researchers have generalized that handicapped trainees who receive on-the-job training seldom require retraining, regardless of time interval between training and placement	7:_6:_5:_4:_3:_2:_1:_	26
P. Performance (Judgment of ... of graduates) -the preference of one training method over another may be determined by the performance of graduates after placement on-the-job.	7:_6:_5:_4:_3:_2:_1:_	27
Q. Personnel (Number of ... to be trained) - the number of trainees that flow through a course or courses of instruction may be affected by trainee and instructor time, use of equipment, materials and facilities	7:_6:_5:_4:_3:_2:_1:_	28
R. Policy (Philosophy and ...) - institutions's philosophical beliefs, past experiences, fads of the time, and/or "because it seemed to work" policy.	7:_6:_5:_4:_3:_2:_1:_	29
S. Ports of Entry - some occupational entry is controlled by state/federal licensing boards and the amount and method of training is regulated by these agencies	7:_6:_5:_4:_3:_2:_1:_	30
T. Prior Experience - strongly related to the amount of time a person requires to learn job tasks is the amount of prior experiences s/he has had in acquiring job relevant behavior.	7:_6:_5:_4:_3:_2:_1:_	31
U. Quality Control - IEP decision-makers have an interest in making the appropriate choices among the skill development sources to insure there is a high degree of probability that the trainee will learn to produce work of acceptable quality in a reasonable period of time.	7:_6:_5:_4:_3:_2:_1:_	32

Criteria	Used 7:_6:_5:_4:_3:_2:_1:_ Not Used	
V. Resources (Availability/suitability of physical ...) - acquisition and use of substitute equipment and conditions which simulate the environment which will be encountered on-the-job	7:_6:_5:_4:_3:_2:_1:_	33
W. Screening Device - in some job training programs time is allocated for the completion of security checks and for assessing the reliability of the trainee's performance in difficult situations which arise infrequently on-the-job	7:_6:_5:_4:_3:_2:_1:_	34
X. Solicitude - handicapped trainees, depending upon prior training and experience, may seek or ask for more support than their handicap appears to warrant. Normally, this over dependence is due to excessive care or concern by others in the past. Authorities choosing the training setting must weigh this factor in their decision-making process.	7:_6:_5:_4:_3:_2:_1:_	35
Y. Time (Need to minimize training ...) - most instances dictate a need to minimize training time, for example, when "the demand for trained personnel far exceeds the supply". Consequently, the training method chosen may impact upon the amount of time allocated for developing an individual's skills.	7:_6:_5:_4:_3:_2:_1:_	36
Z. Uniformity - trainees can be required to learn all types of tasks they need to perform on-the-job, but the method of training which best prepares the trainee to perform these tasks in a standardized manner must be considered.	7:_6:_5:_4:_3:_2:_1:_	37

Comment(s) _____

_____

_____

E N D O F Q U E S T I O N N A I R E

38-79
80 | 1

- Interview Record -

Date: ____/____/80 Interviewer _____

Time: _____ AM/PM
(End)

_____
(Began)

Elapsed time: _____

APPENOIX C

WORKER QUESTIONNAIRE
(Face-to-Face Interview)

Revision 01/07/80 - III

Investigator's Cover Page
Study # 135
Quest # ____

VOCATIONAL AND TECHNICAL EDUCATION
BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF ILLINOIS

Geographical Location: _____ Job Category: _____ Organization Category: _____

Handicap Category: _____ Race/Ethnic Category: _____ Period of Employment: _____

Name (last, first, m.i.) _____

Address _____

Telephone (AC_____) _____

Source of Nomination: _____

Anecdotal Information: _____

INTRO
OJT
CL
COMB

COVER PAGE
Study # 135
Quest # ___

VOCATIONAL AND TECHNICAL EDUCATION
BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF ILLINOIS

Geographical Location: _____ Job Category: _____ Organization Category: _____

Name (last, first, m.i.) _____

Job Title _____

Address (when applicable, oroanization name) _____

_____ _____

Telephone (AC ___) _____

Interview Schedule

Contacted: __/__/__ Interview Scheduled: YES NO

Interviewer: _____ Day and date: ___ __/__/__

_____ Time: _____

Interview Completed: __/__/__ Location: _____

Communications

Ltr. of confirmation: __/__/__ Ltr. of appreciation: __/__/__

Remarks:

INTRO
OJT
CL
COMB -

Deck 1

FOR OFFICE USE
Quest # ____ 1-3
Study # 135 4-6

VOCATIONAL AND TECHNICAL EDUCATION
BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF ILLINOIS

CRITERIA IDENTIFIED BY HANDICAPPED WORKERS FOR THE SELECTION OF THE TRAINING SETTING

- Questionnaire -

1. Background Information of the Respondent

a. Job title _____

[OTC_____] 7-15

b. Total months in present job _____

[_____] 16-18

c. Organization _____

[_____] 19-21

d. Organization address _____

[_____] 22-24

2. Handicap of Respondent (circle ONLY one)

Area of Handicap	/ Level of Handicap			
	Mild	Moderate	Severe	
a. Physical	01	02	03	25-26
b. Cognitive	04	05	06	
c. Visual	07	08	09	
d. Auditory	10	11	12	
e. Emotional	13	14	15	
f. Speech	16	17	18	
g. Multiple	19	20	21	

INTRO
OJT
CL
COMB

3. The type of training you received was (circle ONLY one)

OJT . . . 1 27

CL. . . . 2

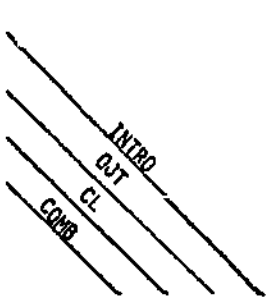
COMB. . . 3

[1 2 3 4 9] 28

comment(s) _____

_____

_____



4. Training Method: (circle, but do not ask) OJT 1 CL 2 COMB 3 29

5. Training Provided

a. What was this training designed to accomplish?

(1) Upgrading your job competencies. 1 30

(2) Entry training for your job. 2 31

(3) Combination of (1) & (2) 3 32

(4) To develop work habits 4 33

(5) To maintain job proficiency. 5 34

(6) To develop job and social skills 6 35

[1 2 3 4 9] 36

comment(s) _____

_____

_____

b. This training led

(1) to entry level proficiency on a specific job 1 37

(2) to greater responsibility (progression) on a specific job. 2 38

(3) to a transfer to a related job 3 39

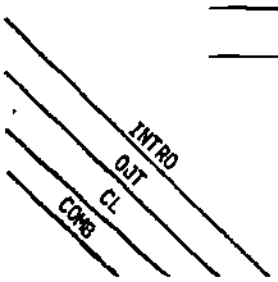
(4) to entry level proficiency for any job 4 40

[1 2 3 4 9] 41

comment(s) _____

_____

_____



c. This training was designed for employment

(1) on the same job and for the same employer. 1 42

(2) in the same job, with the same employer, but different job setting. 2 43

(3) in the same speciality but different employer. 3 44

(4) in any job 4 45

[1 2 3 4 9] 46

comment(s) _____

_____

_____

d. Was the training given by a person who had

(1) experience in the job skills 1 47

(2) no experience in the job skills. 2 48

(3) experience in the work habit skills. 3 49

(4) no experience in the work habit skills 4 50

(5) experience in the social skills. 5 51

(6) no experience in the social skills 11 52-53

(7) experience in job placement. 12 54-55

(8) no experience in job placement 13 56-57

(9) experience in testing. 14 58-59

(10) no experience in testing 15 60-61

[1 2 3 4 9] 62

comment(s) _____

_____

_____

INTRO
OJT
CL
COMB

e. The training was provided by

(1) the training station employer. 1 63

(2) the eventual employer. 2 64

(3) a sheltered workshop 3 65

(4) a public/private school. 4 66

(5) the training station employer and eventual employer . . 5 67

(6) the eventual employer and a sheltered workshop 11 68-69

(7) the eventual employer and a public/private school. . . .12 70-71

(8) the training station employer, eventual employer and a public/private school. 13 72-73

[1 2 3 4 5] 74

comment(s) _____ 75-79/bk

_____ 80 11-3

f. Which of the following generic skills were you required to perform?

(1) Mathematics skills

1-1 read 1 4

1-2 write. 2 5

1-3 count. 3 6

(2) Communications skills

2-1 literal comprehension in reading 4 7

2-2 fluency and idea organization to construct phrases and sentences in writing and speaking. 5 8

[1 2 3 4 9] 9

comment(s) WHY? _____

_____

_____

INTRO
OJT
CL
COMB

6. Institutional Criteria

a. Cost:

(1) The cost of specific training for your job was incurred by

(a)	you (or benefactor, e.g., parent). 1	10
(b)	the training station employer. 2	11
(c)	the eventual employer. 3	12
(d)	the public/private school. 4	13
(e)	you and the training station employer. 2	14
(f)	you and the eventual employer. 3	15
(g)	you and the public/private school. 4	16
(h)	the training station employer and eventual employer 3	17
(i)	the training station employer and the public/private school. 4	18
	[1 2 3 4 9]	19

comment(s) _____

_____

_____

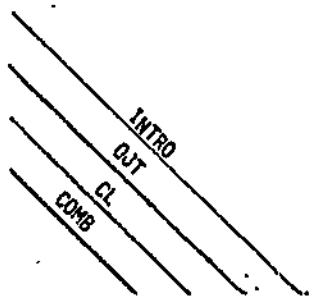
(2) With adequate financial support which do you believe would have been the most preferred training method (setting) to prepare you for your current job?

OJT. . . 1	20
CL . . . 2	21
COMB . . 3	22
[1 2 3 4 9]	23

comment(s) WHY? _____

_____

_____



b. Capability:

(1) How current was the instruction you received via OJT?

out of date		current		well advanced	no opinion	
1	2	3	4	5	8	24
					[1 2 3 4 9]	25

(2) How current was the instruction you received via CL?

out of date		current		well advanced	no opinion	
1	2	3	4	5	8	26
					[1 2 3 4 9]	27

(3) THE OJT instructor(s) who trained you for the skills required in this job were

unqualified		somewhat qualified		qualified	no opinion	
1	2	3	4	5	8	28
					[1 2 3 4 9]	29

(4) The CL instructor(s) who trained you for the skills required in this job were

unqualified		somewhat qualified		qualified	no opinion	
1	2	3	4	5	8	30
					[1 2 3 4 9]	31

(5) Which training method options were offered by the training agency(ies)?

OJT. 1 32
CL 2 33
COMB 3 34
UNK. 8 35
[1 2 3 4 9] 36

(6) Which additional role(s) did your instructor fulfill?

(a) 1st line supervisor. 1 37
(b) Co-worker. 2 38
(c) Trainer-instructor 3 39
(d) Family member. 4 40
(e) Unknown. 8 41
[1 2 3 4 9] 42

(7) Which training method was preferred based on the capabilities of the training agency(ies)?

OJT. 1 43
CL 2 44
COMB 3 45
UNK. 8 46
[1 2 3 4 9] 47

INTRO
OJT
CL
COMB

c. Philosophy and Policy:

(1) The expectations of your instructor(s) for your performance in this training program were

low		medium		high	unknown	
1	2	3	4	5	8	s8
					[1 2 3 4 9]	s9

comment(s) _____

_____

(2) The type of training preferred by the training agency(ies) for developing your skills was

OJT. . . 1 s0
CL . . . 2
COMB . . 3
UNK. . . 8
[1 2 3 4 9] s1

comment(s) _____

_____

d. Availability/Suitability of Physical Resources:

(1) How do you think the equipment and/or facilities used by you during your training compares to those you found on the job?

worse		the same		better	no opinion or unknown	
1	2	3	4	5	8	s2
					[1 2 3 4 9]	s3

comment(s) (if other than "3" and "8" explain.) _____

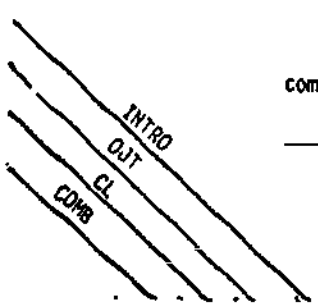
_____

(2) To what extent did your task and job behaviors during training compare to those required of you on the job?

the same		different		very different	no opinion or unknown	
1	2	3	4	5	8	s4
					[1 2 3 4 9]	s5

comment(s) (if other than "1" and "8" explain.) _____

_____



(3) The best physical resources for your training was

OJT	CL	COMB		
1	2	3		56
			[1 2 3 4 9]	57

comment(s) _____

_____

e. Reality of Atmosphere:

(1) To what extent was your training conducted in a work atmosphere (i.e., breaks, work shifts, etc.) that is typical or identical to the conditions of your job?

the same		different		very different	no opinion or unknown	
1	2	3	4	5	8	58
					[1 2 3 4 9]	59

(2) How important would it have been for you to experience typical or identical conditions of work in preparation for your job?

not necessary		desirable		essential	no opinion or unknown	
1	2	3	4	5	8	60
					[1 2 3 4 9]	61

comment(s) (if other than "1" and "2", explain.) _____

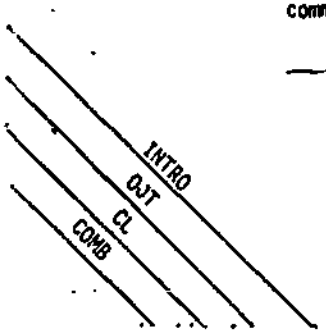
_____

(3) The most realistic work atmosphere for your training was

OJT	CL	COMB		
1	2	3		62
			[1 2 3 4 9]	63

comment(s) _____

_____



f. Screening Device

(1) Were you screened (e.g., security check, physical-psychological exams, etc.) before being allowed to complete/graduate from your program of training?

Yes. . . 1 64
No . . . 2
Unk. . . 8
[1 2 3 4 9] 65

(2) How important to the employer was your previous training when you were considered for this job?

not necessary		desirable		essential	no opinion or unknown
1	2	3	4	5	8

66
[1 2 3 4 9] 67

comment(s) (if other than "1" and "8", explain.) _____

_____

(3) Is there/was there a requirement that you successfully complete a specified training requirement before being considered for promotion on this job?

not necessary		desirable		essential	no opinion or unknown
1	2	3	4	5	8

68
[1 2 3 4 9] 69

comment(s) (if other than "1" and "8", explain.) _____

_____

g. History and Pragmatism:

(1) Consider the following definitions:

(a) Tradition means "it has always been done that way."

(b) Data means "research indicates that this is the most efficient way to do it or job market reports indicate a specified entry level of proficiency."

INTRO
OJT
CL
COMB

(2) If you were given the opportunity to choose the training setting for preparing yourself for this job, what would influence your decision the most?

tradition		combination		data	no opinion or unknown	
1	2	3	4	5	8	70
					[1 2 3 4 9]	71

(3) Based on your knowledge and experience in this job what method of training would you have recommended for yourself prior to entering this job?

OJT . . . 1 — 72
CL . . . 2
COMB . . 3
NO OPINION . . 8
[1 2 3 4 9] — 73

comment(s) _____

_____

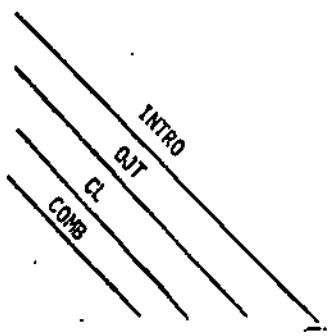
74-79/BK

h. Evaluation of Training: 80 | 2 1-1 | DUP

(1) During your training which performance skills were expected of you (i.e. you were required to perform these tasks satisfactorily)?

(a) Daily living skills:

dependable and reliable 1	4
neat and clean. 2	5
self-toilet 3	6
self-eating 4	7
self-dressing 11	8-9
maintain health 12	10-11
transport self, independently 13	12-13
unknown, don't know 98	14-15
[1 2 3 4 9]	16



(b) Social skills:

relate to others	1	17
possess a social philosophy on "acceptance"	2	18
courteous, appropriate behavior	3	19
exercise self-control	4	20
fulfill obligations	11	21-22
adjust to environmental circumstances	12	23-24
loyal and trustworthy	13	25-26
unknown, don't know	98	27-28
	[1 2 3 4 9]	29

(c) Work skills:

on time for work	1	30
maintain attendance	2	31
communicate clearly and accurately with others	3	32
follow directions	4	33
demonstrate perseverance	11	34-35
complete assigned tasks satisfactorily	12	36-37
unknown, don't know	98	38-39
	[1 2 3 4 9]	40

comment(s) _____

_____

(2) In which training setting(s) were these skills assessed?

(a) Daily living skills:

OJT	1	41
CL	2	42
COMB	3	43
UNK	8	44
	[1 2 3 4 9]	45

INTRO
OJT
CL
COMB

(b) Social skills:

OJT. . . . 1 46
CL 2 47
COMB . . . 3 48
UNK. . . . 8 49
[1 2 3 4 9] 50

(c) Work skills:

OJT. . . . 1 51
CL 2 52
COMB . . . 3 53
UNK. . . . 8 54
[1 2 3 4 9] 55

comment(s) _____

_____

7. Quality and Speed Related Criteria

a. Number of Trained Personnel Required:

(1) The largest number of trainees actually in training at one time when you were in training was:

Number of trainees _____ 56-59

Unknown 9998

[1 2 3 4 9] 60

61-79/8K

(2) Considering the number of trainees in your program which method of training would you have preferred? 60 | 3 | 1-3 | D U P

OJT. . . . 1 4
CL 2
COMB . . . 3
No opinion.8
[1 2 3 4 9] 5

comment(s) _____

_____

INTRO
OJT
CL
COMB

Deck 4

b. Persistence of Demand for Trained Personnel:

(1) Based on your knowledge, persons with your type of training background will be needed for this type of job

seldom		periodically		frequently	unknown	
1	2	3	4	5	8	6
					[1 2 3 4 9]	7

(2) The average annual demand for persons with your training to fill jobs of this type is

low		medium		high	unknown	
1	2	3	4	5	8	8
					[1 2 3 4 9]	9

comment(s) _____

_____

c. Need to Minimize Training Time:

(1) What was the average number of months to train a person in your job skills?

Number of months _____ 10 - 13

Unknown 9998

[1 2 3 4 9] 14

(2) If the period of time for your training had had to be reduced, which method of training would have best prepared you for your job?

OJT. 1 15

CL 2

COMB 3

UNK. 8

[1 2 3 4 9] 16

comment(s) _____

_____

INTRO
OJT
CL
COMB

d. State of the Business Cycle:

(1) Twelve months after completing your training were you earning a competitive wage, i.e., a wage commensurate with your skills?

Yes. 1 17

No. 2

Unk 8

[1 2 3 4 9] 18

(2) If yes, what was your hourly wage rate (e.g., $1.00/hr)?

wage rate:_____ 19-22

Unknown 9998

[1 2 3 4 9] 23

(3) In your opinion, if there were a high demand for persons to fill jobs similar to yours, in which training setting would they get the most essential training in the least amount of time?

OJT. 1 24

CL 2

COMB 3

NO OPINION . 8

[1 2 3 4 9] 25

comment(s) _____

_____

INTRO
OJT
CL
COMB

8. Job Related Criteria

a. Frequency:

(1) In choosing tasks to be taught in a training program it is usual to teach tasks which are performed in a job by most workers and not to teach tasks which workers rarely perform.

(2) To what extent did the skill tasks taught in your program compare to those required of you on the job?

the same		different		very different	no opinion or unknown	
1	2	3	4	5	8	26
					[1 2 3 4 9]	27

comment(s) (If other than "1" and "8", explain)_____

_____

(3) The tasks which you perform on your job at least once every week are easier to recall and perform when taught

OJT. 1 28
CL 2
COMB 3
No Opinion . . 8

[1 2 3 4 9] 29

comment(s) (If other than "8", explain.) _____

_____

b. Criticality:

(1) The potential safety hazards or the risk to injury or damage in your training program to you, the equipment, or the facilities was

low		medium		high	unknown	
1	2	3	4	5	8	30
					[1 2 3 4 9]	31

INTRO
OJT
CL
COMB

(2) If your job had subjected you to potential safety hazards or risk of injury, which training method do you believe would best prepare you for the hazards of your job?

OJT. 1 32

CL 2

COMB 3

NO OPINION . 8

[1 2 3 4 9] 33

comment(s) _____

_____

c. Uniformity:

(1) During your training, how much emphasis was placed on job tasks being performed exactly the same way everytime?

unimportant		borderline		important	unknown	
1	2	3	4	5	8	34

[1 2 3 4 9] 35

(2) If a requirement of uniformity had been a competency to be attained in your training, which method of training would you choose to develop this skill?

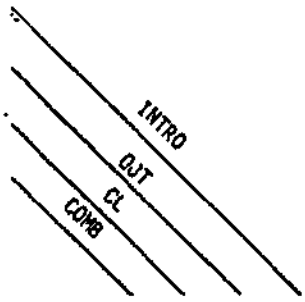
OJT. 1 36

CL 2

COMB 3

NO OPINION . 8

[1 2 3 4 9] 37



d. Complexity:

(1) In your training program how many days did it take for you to learn a complex task to acceptable, quality standards?

number of days:_____ 38-40

unknown 998

[1 2 3 4 9] 41

(2) If given the choice, which method of training would you have chosen to learn the most complex task(s) of your job?

OJT. 1 42

CL 2

COMB 3

NO OPINION . 8

[1 2 3 4 9] 43

(3) Which method of training would you have chosen to learn the least complex task(s) (easy to learn) of your job?

OJT. 1 44

CL 2

COMB 3

NO OPINION . 8

[1 2 3 4 9] 45

comment(s) _____

_____

e. Judgement of Performance of Graduates:

(1) Upon completion of training and the attainment of employment, how many months after employment were you promoted to a higher status job or received a wage increase due to your performance?

number of months _____ 46-47

unknown 98

[1 2 3 4 9] 48

INTRO
OJT
CL
COMB

(2) Using your peers as a measure, did these fellow workers receive their promotions in a similar period of time?

Yes. 1 49

No 2

Unk. 8

[1 2 3 4 9] 50

(3) Based on your experience which training method would you have preferred to attain the maximum level of competency in the period specified (re: Q. 8e(1))?

OJT. 1 51

CL 2

COMB 3

NO OPINION . 8

[1 2 3 4 9] 52

comment(s) _____

_____

f. Passage of Time:

(1) Were you retained in your training program because a job was not readily available?

Yes. 1 53

No 2

Unk. 8

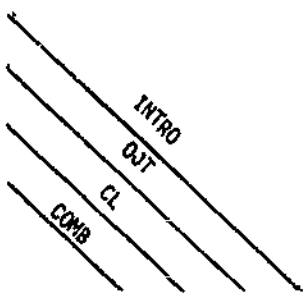
[1 2 3 4 9] 54

(2) What was the time interval, in days, between the completion of your training and job placement?

Number of days _____ 55-58

Unknown 9998

[1 2 3 4 9] 59



(3) [If immediately employed, go to next question, Q. 89, p. 22.]

What prevented your immediate employment after training?

a. Family sheltering. 1 60
b. Lack of self-courage 2 61
c. Not aware of how to seek employment. 3 62
d. Lack of encouragement by hiring authorities in community 4 63
e. Employment in your field of interest was not available. 5 64
f. No employment of any type was available. 6 65

[1 2 3 4 9] 66

(4) An unacceptable loss of potential job efficiency occurs when the time interval between graduation and actual job entry exceeds a given period of time. Did you experience a loss of job efficiency upon employment?

Yes. 1 67
No 2
Unk. 8
[1 2 3 4 9] 68

(5) Using your peers as a measure, did your fellow workers express a similar experience?

Yes. 3 69
No 4
Unk. 8
[1 2 3 4 9] 70

(6) Which job skills were affected the most?

None. 1 71
Complex 2
Easy to learn . . 3
Unknown 8
[1 2 3 4 9] 72

INTRO
OJT
CL
COMB

(7) If the time interval between training and work actually makes a difference in your job performance, which method of training would you have preferred to best retain your job skill proficiency?

OJT. 4 73
CL 5
COMB 6
NO OPINION. . 8
[1 2 3 4 9] 74

comment(s) _____

_____

9. Instrumentality:

(1) The percent of tasks you are expected to perform that require skills in reading, computing, and/or speaking is

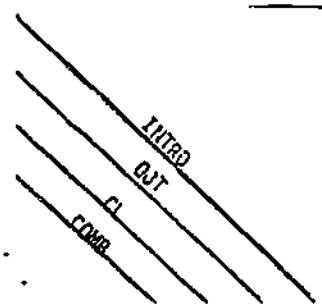
80 - 99. . . 1 75
60 - 79. . . 2
40 - 69. . . 3
20 - 39. . . 4
00 - 19. . . 5
[1 2 3 4 9] 76

(2) Which method of training would you have chosen to acquire basic educational skills to perform your job?

OJT. 1 77
CL 2
COMB 3
[1 2 3 4 9] 78

comment(s) _____ 79/BK

_____ 80 | 4 1-3 | D U P



h. Quality Control:

(1) After employment the average time in days required for you to learn to produce work of acceptable quality was

No. of days _____ 6-7

Unknown 9998

[1 2 3 4 9] 8

(2) In this job the requirements for producing work of acceptable quality is

difficult		borderline		easy	unknown	
1	2	3	4	5	8	9

[1 2 3 4 9] 10

comment(s) _____

_____

i. Ports of Entry:

(1) Which method of access was used in your placement? 11-12

a. Department of Rehabilitation Services. 01
b. Sheltered workshop 02
c. Public school placement office 03
d. Private placement office. 04
e. State/Federal placement office 11
f. Media (e.g., radio, TV, newspaper, magazine) . . . 12
g. Referral by a training authority (Explain!). . . . 13
h. Personal contact with employing authority. 14
i. Unknown. 98

[1 2 3 4 9] 13

(2) Upon completion of training were you certified (awarded a certificate or diploma) to indicate the completion/attainment of a specified skill/vocation?

Yes. 1 14

No 2

Unknown. . . . 8

[1 2 3 4 9] 15

INTRO
OJT
CL
COMB

(3) Did a licensing board or agency control your entry into this job?

Yes. . . . 3 16
No 4
Unknown. . 8
[1 2 3 4 9] 17

[Note: If response is "4" or "8", skip to Q. 9.]

(4) Did the board or agency regulate (determine) the amount of training required for job entry?

Yes. . . . 1 18
No 2
Unknown. . 8
[1 2 3 4 9] 19

(5) If an agency specified the method of training, which did they specify for your job?

OJT. . . . 1 20
CL 2
COMB . . . 3
[1 2 3 4 9] 21

comment(s) _____

_____

9. Respondent's Occupational Decision-Making Criteria

a. Which placement means gave you the greatest feeling of independence during your job selection process?

(1) Department of Rehabilitation Services. 01 22-23
(2) Sheltered workshop 02
(3) Public school placement office 03
(4) Private placement office. 04
(5) State/Federal placement office 11
(6) Media (e.g., radio, TV, newspaper) 12
(7) Referral by a training authority 13
(8) Personal contact with an employing authority . . . 14
(9) Unknown. 98
[1 2 3 4 9] 24

INTRO
OJT
CL
COMB

b. Prior to choosing this job/occupation to what extent did you explore other opportunities in the job market?

passive		average		active	no opinion	
1	2	3	4	5	8	25
					[1 2 3 4 9]	26

comment(s) _____

_____

c. What factors were essential elements in the decision-making process when this job/occupation was chosen?

ability. 1	27	geographical stability. . . 11	34-35
accessible 2	28	independence. 12	36-37
aptitude 3	29	interest. 13	38-39
career advancement . . .4	30	role of an ideal person . . 14	40-41
career stability 5	31	role of someone admired . . 15	42-43
economic need. 6	32	self-perception of role . . 16	44-45
family needs 7	33	social conformance. 17	46-47
		social interaction. 18	48-49
		[1 2 3 4 9]	50

comment(s) _____

_____

d. To what extent were you aware of job incentives, e.g., dependent and/or retirement benefits, insurances, vacations, etc., prior to your first employment?

uninformed		informed		very informed	unknown	
1	2	3	4	5	8	51
					[1 2 3 4 9]	52

comment(s) _____

_____

INTRO
OJT
CL
COMB

.e. Were job incentives an essential element when choosing this job/occupation?

Yes 1
No. 2
No opinion. 8

[1 2 3 4 9] 53-54

comment(s) _____

_____

10. Respondent's Background Criteria

a. Solicitation:

(1) Many handicapped persons experience either over sympathetic acts of pity or extreme acts of apathy from persons with whom they have frequent contact. Did you experience either of these acts?

seldom		periodically		frequently	unknown
1	2	3	4	5	8

55

[1 2 3 4 9] 56

(2) [If the response to Q. 10 a(1) was "1", complete this question.] What affect do you think this lack of attention, whether pity or apathy, had upon your skill development?

unfavorable		no affect		favorable	no opinion
1	2	3	4	5	8

57

[1 2 3 4 9] 58

(3) [If the response was "1", "8" or "9", to Q. 10 a(1) go to Question 10 a(6).] Which act did you experience most frequently? [Choose only one.]

acts of pity. . .1
acts of apathy .2

59

[1 2 3 4 9] 60

(4) In which environment were these acts most frequently experienced?

home 01
high school (gr's: 9 - 12) 02
vocational/technical school (gr's: 11 - 12) 03
post-secondary school (gr's: 13 -). 04
advocates. 05

61-62

INTRO
QUT
CL
COMB

placement office(s). 11
sheltered workshop 12
work site of work establishment. 13
classroom/laboratory of work establishment 14
labor union hall or school 15
unknown. 98

[1 2 3 4 9] 63

(5) How do you think your skill development was affected by these acts?

Unfavorably		No Affect		Favorably	No Opinion
1	2	3	4	5	8

64

[1 2 3 4 9] 65

(6) Who/what had the greatest influence in helping you gain independence?

self-perception of ability 01 66-67
encouragement to work. 02
economic pressure within family unit 03
"negative" comments by others. 04
encouragement by an advocate 11
encouragement by training authorities. 12
encouragement by employing agencies/authorities. . .13
encouragement by family member(s). 14
unknown. 98

[1 2 3 4 9] 68

b. Preferred Learning Method(s):

(1) Which training method would you have preferred for learning skills of your job?

OJT 1 69
CL. 2
COMB. . . . 3
NO OPINION. 8

[1 2 3 4 9] 70

INTRO
OJT
CL
COMB

-28- Deck 5-6

(2) With which agency(ies) did you receive your training?

(a) work site . . . . . 1 [71]
(b) work site CL. 2
(c) combination of (a) and (b) 3
(d) union hall/school . . 4
(e) VOTEC school. . . . . 1 [72]
(f) high school 2
(g) home. 3
(h) post-secondary school . . 4
[1 2 3 4 9] [73]

74–79/BK
80 | 5 | 1–3 | D U P

(3) Which agency(ies) would you have preferred for training?

(a) work site . . . . . 1 [5]
(b) work site CL. 2
(c) combination of (a) and (b) 3
(d) union hall/school . . 4
(e) VOTEC school. 1
(f) high school 2
(g) home. 3
(h) post-secondary school . . 4
[1 2 3 4 9] [6]

(4) To what extent did you share in the decision of selecting the training setting for this employment?

passive		average		active	no opinion	
1	2	3	4	5	8	[7]
					[1 2 3 4 9]	[8]

INTRO
OJT
CL
COMB

(5) The agent/person that selected the training setting was your

counselor.	1	9
administrator.	2	
trainer.	3	
employer	4	
parent	5	
self	6	
unk.	8	
[1 2 3 4 9]		10

(6) Did you have the option of choosing other programs for job training?

Yes.	1	11
No	2	
Unk.	8	
[1 2 3 4 9]		12

(7) If yes, which programs can you recall?

Training Program _____ [ ]	13-15
Training Program _____ [ ]	16-18
Training Program _____ [ ]	19-21
Training Program _____ [ ]	22-24
[1 2 3 4 9]	25

INTRO
OJT
CL
COMB

c. Disabilities:

Respondent's condition. (Circle, but do not ask.)

HandicaPPed Level	Mild	Moderate	Severe	
(1) Physical	01	02	03	26-27
(2) Cognitive	04	05	06	
(3) Visual	07	08	09	
(4) Auditory	10	11	12	
(5) Emotional	13	14	15	
(6) Speech	16	17	18	
(7) Multiple*	19	20	21	

comment(s)_____

_____

d. Abilities and Aptitudes:

In your opinion at what rate do you acquire skills?

slow		average		fast	no opinion	
1	2	3	4	5	8	28
					[1 2 3 4 9]	29

comment(s)_____

_____

e. Prior Experience:

(1) The job relevant, task performance behaviors which you had before entering training were

few		average		many	unknown	
1	2	3	4	5	8	30
					[1 2 3 4 9]	31

INTRO
OJT
CL
COMB

*Describe in comment section.

(2) During this interview were your earlier training method selections decided upon based on your pre-training [define] experience?

Yes. 1 32

No 2

[1 2 3 4 9] 33

(3) Year of entry into current job _____ 34-37

[1 2 3 4 9] 38

comment(s) _____

_____

11. Respondent's Demographic Criteria

a. In what year were you born? _____ 39-42

[1 2 3 4 9] 43

b. In what year were you impaired? _____ 44-47

[1 2 3 4 9] 48

c. What was the average annual family income from the time of your impairment until you became self-supporting? (Adjusted to current inflation level.)

Less than $5,000? 1 49

Less than $10,000?. 2

Less than $20,000?. 3

Less than $40,000?. 4

Less than $60,000?. 5

Was it $60,000 or more? 6

Unknown 8

[1 2 3 4 9] 50

INTRO
CJT
CL
COMB

d. Racial/Ethnic Background (Circle, but do not ask.)

Afro-American	1	s1
Asian-American.	2	
Eurasian-American	3	
European-American	4	
Latin-American.	5	
Native American	6	

e. Sex (Circle, but do not ask.)

Male	1	s2
Female	2	

f. Influence of impairment (circle, but do not ask.)

(1) Handicapped

At birth.	1	s3
During pre-adolescence. . .	2	
During adolescence.	3	
During post-adolescence . .	4	

(2) Disabled

Before employment	5	s4
After employment.	6	

g. Year of first part-time employment was _____ s5-s8

[1 2 3 4 9] s9

h. Year of first full-time employment was _____ 60-63

[1 2 3 4 9] 64

65-79/8K
80 6 1_3 DUP

INTRO
OJT
CL
COUR

-33- Deck 7

1. If you have had employment prior to this present job, please identify the type of job, method of additional training, and the number of months in that employment.

Type of Job	Method (OJT 1, CL 2, COMB 3)	Month(s)
_____ [ ] 4-12	_____ 13	_____ [ ] 14-16
_____ [ ] 17-25	_____ 26	_____ [ ] 27-29
_____ [ ] 30-38	_____ 39	_____ [ ] 40-42
_____ [ ] 43-51	_____ 52	_____ [ ] 53-55

[1 2 3 4 9] 56

comment(s) _____

_____ 57-79/BK
80 | 7

INTRO
OJT
CL
COMB

END OF QUESTIONNAIRE

_____

_____

(FOLD/CLIP-OFF HERE)

RESPONSE CONFIDENCE CODE

1	2	3	4	9
Firm	Changed	Unsure	Refused	No Data

TIME RECORD

Interview ended _____ A P

Interview began _____ A P

_____(period)

APPENDIX D

WORKER QUESTIONNAIRE
(Telephone Interview)

Revision
5/5/80
I

VOCATIONAL AND TECHNICAL EDUCATION
BUREAU OF EDUCATIONAL RESEARCH
UNIVERSITY OF ILLINOIS

For Office Use
Quest. #
Study # 435

Deck 1
1-3
4-6

VALIDATION OF DECISION-MAKING CRITERIA (WORKER)

- Questionnaire -

Section I - Administrative

1. Name (last, first, m.i.) _____

2. Geographical Location: _____ [ ] 7-8

3. Job Category of Respondent: 9-11

005 076 090 091 094 099 110
159 160 165 169 183 195 202
210 213 249 260 274 323 929

4. Condition of Impairment: 12

Physical 1
Cognitive 2
Visual 3
Auditory 4

5. Type of Training Experienced: 13

On-the-job 1
Classroom/Laboratory 2
Combination. 3

6. Definitions:

"Training" is the minimum acceptable personal development required for job placement or job advancement. It involves the place, time and methods that are essential to develop physical and mental skills, knowledge and attitudes.

"On-the-job training"(OJT) encompasses all knowledge and job experience acquired by a trainee as a result of working at her/his assigned job.

"Classroom/laboratory training" (CL) is traditional or conventional classroom or laboratory instruction in which the instructor and student regularly meet at a specific time and place for the primary purpose of teaching and learning.

"Combination" (COMB) is both OJT and CL methods used together for individual development.

"Impairing Condition":

Physical - loss of ability to move part or parts of body.

Cognitive - mental retardation.

Visual - in both eyes: loss of peripheral vision, restriction of visual field, or blind.

Auditory - hard of hearing or deaf in both ears, deafness with or without understandable speech.

"Vocational" skills/competencies are those general or specific skills and knowledges which are salable on a broad or a "firm" specific job market.

Section II - Criteria for Placement of Persons with Handicaps in a Specified Training Setting

Listed alphabetically in this section are the "decision-making" criteria which administrators, counselors, employers, instructors and workers have reportedly used or presumed were used when determining the Placement of persons with handicaps in the "least restrictive" vocational training setting. In your opinion please evaluate each criterion by circling the numerical value on the seven-point scale which indicates the extent to which you believe a criterion was used when selecting the training setting for your vocational development; and on the five-point scale [in brackets] indicate the extent to which you believe the criterion should have been used. For example:

7: Always Used 6: Very Often Used 5: Often Used 4: Sometimes Used 3: Not Often Used 2: Not Very Often Used 1: Never Used

[5: Always Used 4: Often Used 3: Sometimes Used 2: Not Often Used 1: Never Used]

Hence:

"a given criterion" . . . . . 7:(6)_5:_4:_3:_2:_1:_

[5:(4)_3:_2:_1:_]

A selected position of "6" means that the criterion was very often used, and the selected position of "4" means that you believe this criterion should have been often used.

Criteria	Used 7:_6:_5:_4:_3:_2:_1:_ Not Used	
A. Abilities and Aptitudes - the choice of training method has often been determined by the abilities and aptitudes of trainees. The expected development of individuals in a specific aptitude is considered by most experts to be an educated guess. Consequently, this makes difficult the choice of training methods for individuals according to their abilities and aptitudes.	7:_6:_5:_4:_3:_2:_1:_	14
	[5:_4:_3:_2:_1:_]	15
B. Atmosphere (Reality of ...) - creation of a simulated work setting where factors pertaining to the pressures of the work site such as development of attitudes toward shift work, performing work on holidays, working under pressures of anxiety, and responding to job environmental pressures of too little time, and too many demands.	7:_6:_5:_4:_3:_2:_1:_	16
	[5:_4:_3:_2:_1:_]	17
C. Business Cycle (State of ...) - the extent to which the economy is able to support full employment for all those desiring to work. "The health of the economy affects everyone, but the impacts are greatest for the groups in the labor force that are least prepared for or capable of work and least desired by employers." (Levitan & Taggart, 1977, p. 95)	7:_6:_5:_4:_3:_2:_1:_	18
	[5:_4:_3:_2:_1:_]	19

Deck 1

Criteria	Used 7:_6:_5:_4:_3:_2:_1:_ Not Used
D. Capability - maximum number of personnel who can be in training at any point in time without causing "unacceptable" degradation in the quality of skills attained and without causing "unacceptable" loss in productivity.	7:_6:_5:_4:_3:_2:_1:_ 20 [5:_4:_3:_2:_1:_] 21
E. Complexity - most teachers/instructors believe there are two major components to learning difficulty: first, the difficulty of the task and second, the difficulty of learning due to trainee characteristics. For example: complex tasks are usually more difficult to learn because of the importance to marry principles and procedural sequences while developing motor skills.	7:_6:_5:_4:_3:_2:_1:_ 22 [5:_4:_3:_2:_1:_] 23
F. Cost - relating to facilities, personnel, resources, materials, equipment, transportation, personal attire. . .	7:_6:_5:_4:_3:_2:_1:_ 24 [5:_4:_3:_2:_1:_] 25
G. Criticality - for example, if a task must be accomplished in an emergency and if the probability of being able to perform the task adequately without training is low, a major question may be which method of training will best prepare the trainee to perform essential skills under high risk conditions	7:_6:_5:_4:_3:_2:_1:_ 26 [5:_4:_3:_2:_1:_] 27
H. Demand (Persistence of ... for trained personnel) - the long-term job requirement for trained workers may influence the use of one training setting over another	7:_6:_5:_4:_3:_2:_1:_ 28 [5:_4:_3:_2:_1:_] 29
I. Disabilities - it is believed that a trainee's type of disability will have a significant influence upon the length of time required to attain a desired level of competence. Therefore, the choice of training setting will be influenced by the trainee's handicap	7:_6:_5:_4:_3:_2:_1:_ 30 [5:_4:_3:_2:_1:_] 31
J. Evaluation - Appraisal of the quality of training provided during the course of instruction.	7:_6:_5:_4:_3:_2:_1:_ 32 [5:_4:_3:_2:_1:_] 33
K. Frequency - tasks that are performed frequently by most job incumbents at a given skill level are prime candidates for inclusion in most training programs, and conversely, tasks that are performed infrequently, should be eliminated from some training programs	7:_6:_5:_4:_3:_2:_1:_ 34 [5:_4:_3:_2:_1:_] 35
L. History and Pragmatism - empirical data are seldom used when deciding whether to teach a competence on-the-job or in a classroom/laboratory setting. Some training authorities use their experience in deciding which training method to use in a particular case. However, there are authorities from the other "camp" who chose the training method based on tradition, i.e. "they had always done it that way"	7:_6:_5:_4:_3:_2:_1:_ 36 [5:_4:_3:_2:_1:_] 37

Criteria	Used	Not Used
M. Instrumentality - refers to skills in reading, computing and communicating which are difficult to teach in conjunction with most occupational/vocational training programs. The kinds of jobs which will be available to the trainee should be analyzed to determine which adjunct skills are necessary for further learning or for adapting to job changes.	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	38 39
N. Learning Modes (Preferred ...) - the trainee's preference for a specific method of training to acquire specified competencies should be taken into consideration when the circumstances permit	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	40 41
O. Passage of Time - the time interval between completion of training and the initial performance at work may have an impact on qualitative, long-term performance on-the-job. Some researchers have generalized that handicapped trainees who receive on-the-job training seldom require retraining, regardless of time interval between training and placement.	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	42 43
P. Performance (Judgment of ... of graduates) - the preference of one training method over another may be determined by the performance of graduates after placement on-the-job.	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	44 45
Q. Personnel (Number of ... to be trained) - the number of trainees that flow through a course or courses of instruction may be affected by trainee and instructor time, use of equipment, materials and facilities . . .	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	46 47
R. Policy (Philosophy and ...) - institution's philosophical beliefs, past experiences, fads of the time, and/or "because it seemed to work" policy	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	48 49
S. Ports of Entry - some occupational entry is controlled by state/federal licensing boards and the amount and method of training is regulated by these agencies.	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	50 51
T. Prior Experience - strongly related to the amount of time a person requires to learn job tasks is the amount of prior experiences s/he has had in acquiring job relevant behavior	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	52 53
U. Quality Control - IEP decision-makers have an interest in making the appropriate choices among the skill development sources to insure there is a high degree of probability that the trainee will learn to produce work of acceptable quality in a reasonable period of time	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	54 55

Criteria	Used 7:_6:_5:_4:_3:_2:_1:_	Not Used
V. Resources (Availability/suitability of physical ...) - acquisitions and use of substitute equipment and conditions which simulate the environment which will be encountered on-the-job.	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	56 57
W. Screening Device - in some job training programs time is allocated for the completion of security checks and for assessing the reliability of the trainee's performance in difficult situations which arise infrequently on-the-job.	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	58 59
X. Solicitude - handicapped trainees, depending upon prior training, and experience, may seek or ask for more support than their handicap appears to warrant. Normally, this over dependence is due to excessive care or concern by others in the past. Authorities choosing the training setting must weigh this factor in their decision-making process.	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	60 61
Y. Time (Need to minimize training ...) - most instances dictate a need to minimize training time, for example, when "the demand for trained personnel far exceeds the supply". Consequently, the training method chosen may impact upon the amount of time allocated for developing an individual's skills	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	62 63
Z. Uniformity - trainees can be required to learn all types of tasks they need to perform on-the-job, but the method of training which best prepares the trainee to perform these tasks in a standardized manner must be considered. .	7:_6:_5:_4:_3:_2:_1:_ [5:_4:_3:_2:_1:_]	64 65

Comment(s) _____

_____

_____

E N D O F Q U E S T I O N N A I R E

_____

_____

66_79 BK

60 | 1

- Interview Record -

Date: _____ / / 80 Interviewer _____

Time: _____ AM/PM
(End)

_____
(Began)

Elapsed Time: _____

APPENDIX E

ADVOCATE QUESTIONNAIRE

For Office Use	Deck 1
Quest # ____	1-3
Study # 235	4-6

BUREAU OF EDUCATIONAL RESEARCH, UNIVERSITY OF ILLINOIS, URBANA

CRITERIA USED IN SCHOOLS AND INDUSTRIES WHEN SELECTING VOCATIONAL TRAINING METHODS FOR HANDICAPPED PERSONS

QUESTIONNAIRE - NATIONAL (PHASE II)

I. Participant

AA. Job Title _____ [ ] 7-9

AB. Total Months in Present Job _____ [ ] 10-12

AC. Agency _____ [ ] 13-15

AD. City/Town and State _____ [ ] 16-17

AE. Handicap Population Experience _____ [ ] 18-19

II. Questions (Instructions: Indicate your choice of criteria by circling the number next to each alphabetized statement.)

A. Cost - relating to facilities, personnel, resources, materials, equipment, etc. 1 0 20

B. Capability - maximum number of personnel who can be in training at any point in time without causing "unacceptable" degradation in the quality of skills attained and without causing "unacceptable" loss in productivity. 1 0 21

C. Policy (Philosophy and ...) - institution's philosophical beliefs, paat experiences, fads of the time, and/or "because it seemed to work" policy 1 0 22

D. Resources (Availability/suitability of physical ...) - acquisition and use of substitute equipment and conditions which simulate the environment which will be encountered on-the-job. 1 0 23

E. Atmosphere (Reality of ...) - creation of a simulated work setting where factors pertaining to the pressures of the work site such as development of attitudes toward shift work, performing work on holidays, working under preasures of anxiety, and responding to job environmental pressures of too little time, and too many demands 1 0 24

F. Personnel (Number of ... to be trained) - the number of trainees that flow through a course or courses of instruction may be affected by trainee and instructor time, use of equipment, materials and facilities 1 0 25

G. Demand (Persistence of ... for trained personnel) - the long-term job requirement for trained workers may influence the use of one training setting over another 1 0 26

H. Time (Need to minimize training ...) - most instances dictate a need to minimize training time, for example, when "the demand for trained personnel far exceeds the supply". Consequently, the training method chosen may impact upon the amount of time allocated for developing an individual's skills 1 0 27

I. Business Cycle (State of ...) - the extent to which the economy is able to support full employment for all those desiring to work. "The health of the economy affects everyone, but the impacts are greatest for the groups in the labor force that are least prepared for or capable of work and least desired by employers." (Levitan & Taggart, 1977, p. 95). 1 0 28

J. Frequency - tasks that are performed frequently by most job incumbents at a given skill level are prime candidates for inclusion in most training programs, and conversely, tasks that are performed infrequently, should be eliminated from some training programs 1 0 29

K. Criticality - for example, if a task must be accomplished in an emergency and if the probability of being able to perform the task adequately without training is low, a major question may be which method of training will best prepare the trainee to perform essential skills under high risk conditions. 1 0 30

L. Quality Control - IEP decision-makers have an interest in making the appropriate choices among the skill development sources to insure there is a high degree of probability that the trainee will learn to produce work of acceptable quality in a reasonable period of time . . . 1 0 31

M. Instrumentality - refers to skills in reading, computing and communication which are difficult to teach in conjunction with most occupational/vocational training programs. The kinds of jobs which will be available to the trainee should be analyzed to determine which adjunct skills are necessary for further learning or for adapting to job changes 1 0 32

N. Prior Experience - strongly related to the amount of time a person requires to learn job tasks is the amount of prior experience s/he has had in acquiring job relevant behavior 1 0 33

O. Abilities and Aptitudes - the choice of training method has often been determined by the abilities and aptitudes of trainees. The expected development of individuals in a specific aptitude is considered by most experts to be an educated guess. Consequently, this makes difficult the choice of training methods for individuals according to their abilities and aptitudes 1 0 34

H. Time (Need to minimize training ...) - most instances dictate a need to minimize training time, for example, when "the demand for trained personnel far exceeds the supply". Consequently, the training method chosen may impact upon the amount of time allocated for developing an individual's skills 1 0 27

I. Business Cycle (State of ...) - the extent to which the economy is able to support full employment for all those desiring to work. "The health of the economy affects everyone, but the impacts are greatest for the groups in the labor force that are least prepared for or capable of work and least desired by employers." (Levitan & Taggart, 1977, p. 95). 1 0 28

J. Frequency - tasks that are performed frequently by most job incumbents at a given skill level are prime candidates for inclusion in most training programs, and conversely, tasks that are performed infrequently, should be eliminated from some training programs 1 0 29

K. Criticality - for example, if a task must be accomplished in an emergency and if the probability of being able to perform the task adequately without training is low, a major question may be which method of training will best prepare the trainee to perform essential skills under high risk conditions. 1 0 30

L. Quality Control - IEP decision-makers have an interest in making the appropriate choices among the skill development sources to insure there is a high degree of probability that the trainee will learn to produce work of acceptable quality in a reasonable period of time . . . 1 0 31

M. Instrumentality - refers to skills in reading, computing and communication which are difficult to teach in conjunction with most occupational/vocational training programs. The kinds of jobs which will be available to the trainee should be analyzed to determine which adjunct skills are necessary for further learning or for adapting to job changes 1 0 32

N. Prior Experience - strongly related to the amount of time a person requires to learn job tasks is the amount of prior experience s/he has had in acquiring job relevant behavior 1 0 33

O. Abilities and Aptitudes - the choice of training method has often been determined by the abilities and aptitudes of trainees. The expected development of individuals in a specific aptitude is considered by most experts to be an educated guess. Consequently, this makes difficult the choice of training methods for individuals according to their abilities and aptitudes 1 0 34

P. Disabilities - it is believed that a trainee's type of disability will have a significant influence upon the length of time required to attain a desired level of competence. Therefore, the choice of training setting will be influenced by the trainee's handicap 1 0 35

Q. Learning Modes (Preferred ...) - the trainee's preference for a specific method of training to acquire specified competencies should be taken into consideration when the circumstances permit 1 0 36

R. Passage of Time - the time interval between completion of training and the initial performance at work may have an impact on qualitative, long-term performance on-the-job. Some researchers have generalized that handicapped trainees who receive on-the-job training seldom require retraining, regardless of time interval between training and placement. 1 0 37

S. Screening Device - in some job training programs time is allocated for the completion of security checks and for assessing the reliability of the trainee's performance in difficult situations which arise infrequently on-the-job. 1 0 38

T. History and Pragmatism - empirical data are seldom used when deciding whether to teach a competence on-the-job or in a classroom/laboratory setting. Some training authorities use their experience in deciding which training method to use in a particular case. However, there are authorities from the other "camp" who chose the training method based on tradition, i.e. "they had always done it that way". 1 0 39

U. Evaluation - appraisal of the quality of training provided during the course of instruction 1 0 40

V. Uniformity - trainees can be required to learn all types of tasks they need to perform on-the-job, but the method of training which best prepares the trainee to perform these tasks in a standardized manner must be considered. 1 0 41

W. Complexity - most teachers/instructors believe there are two major components to learning difficulty: first, the difficulty of the task and second, the difficulty of learning due to trainee characteristics. For example: complex tasks are usually more difficult to learn because of the importance to marry principles and procedural sequences while developing motor skills. 1 0 42

X. Performance (Judgment of ... of graduates) - the preference of one training method over another may be determined by the performance of graduates after placement on-the-job. 1 0 43

Y. Ports of Entry - some occupational entry is controlled by state/federal licensing boards and the amount and method of training is regulated by these agencies 1 0 44

Z. Solicitude - handicapped trainees, depending upon prior training and experience, may seek or ask for more support than their handicap appears to warrant. Normally, this over dependence is due to excessive care or concern by others in the past. Authorities choosing the training setting must weigh this factor in their decision-making process. 1 0 45

4 -79 BK

80 1

END OF QUESTIONNAIRE

CRITERIA USED IN SCHOOLS AND INDUSTRIES WHEN SELECTING VOCATIONAL TRAINING METHODS FOR HANDICAPPED PERSONS

QUESTIONNAIRE - NATIONAL (PHASE II)

I. General

A. Definitions

1. "Training" is the minimum acceptable personal development required for job placement or job advancement. It involves the place, time and methods that are essential to develop physical and mental skills, knowledge and attitudes.
2. "On-the-job training" (OJT) encompasses all self-study knowledge and job experience acquired by a trainee as a result of working at her/is assigned job.
3. "Classroom/laboratory training" (CL) is traditional or conventional classroom or laboratory instruction in which the instructor and student regularly meet at a specific time and place for the primary purpose of teaching and learning.
4. "Combination" (COMB) is both OJT and CL methods used together for individual development.
5. "Handicapping condition":
   a. Physical - loss of ability to move part or parts of body, paralysis.
   b. Cognitive - mental retardation.
   c. Visual - loss of peripheral vision, restriction of visual field, or blind in both eyes.
   d. Auditory - hard of hearing, deafness with understandable speech, deafness and unable to speak clearly.
   e. Emotional - mental or emotional illness, history of treatment for either mental or emotional illness.
   f. Speech - aphasia, articulation errors, stuttering.
   g. Multiple - any combination of handicap condition.
6. "Level of handicapping condition":
   a. Mild - capable of independent functioning when provided guidance and training.
   b. Moderate- usually capable of attaining semi-independent functioning when considerable training and assistance is provided.
   c. Severe - usually remains dependent, requiring training in all areas of functioning, e.g. basic hygiene, language, and social competence.

B. Background

Most vocational competencies are taught to persons with handicaps either on-the-job or in a classroom/laboratory setting. If a decision were to be made between the two methods or a "combination" of the two methods, the selection of the most appropriate setting could make a difference in trainee self-satisfaction and cost, in both time and money, to all persons involved. The purpose of this questionnaire is to gain your assistance in validating identified criteria which are presumed to be common in the decision making processes when choosing the most effective training setting to teach occupational competencies to persons with handicaps.

C. Situation

Given: You are a person in the role of a teacher/instructor, parent, administrator, employer, counselor, or advocate of the handicapped. You are to participate in the joint development of an IEP (Individualized Education Program) for a handicapped person in a secondary or post-secondary job training (occupational/vocational education) program. The choice of training setting(s) will affect this trainee's/learner's productivity, job safety, and viability in our society. Which of the criteria identified in paragraph II must be considered when choosing OJT, CL or COMB setting for the competency development of this handicapped person.

II. Questions (Instructions: Indicate your choice of criteria by circling the number next to each alphabetized statement.)

A. Cost - relating to facilities, personnel, resources, materials, equipment, etc. 10

B. Capability - maximum number of personnel who can be in training at any point in time without causing "unacceptable" degradation in the quality of skills attained and without causing "unacceptable" loss in productivity. 11

C. Policy (Philosophy and ...) - institution's philosophical beliefs, past experiences, fads of the time, and/or "because it seemed to work" policy. 12

D. Resources (Availability/suitability of physical ...) - acquisition and use of substitute equipment and conditions which simulate the environment which will be encountered on-the-job. 13

E. Atmosphere (Reality of ...) - creation of a simulated work setting where factors pertaining to the pressures of the work site such as development of attitudes toward shift work, performing work on holidays, working under pressures of anxiety, and responding to job environmental pressures of too little time, and too many demands. 14

F. Personnel (Number of ... to be trained) - the number of trainees that flow through a course or courses of instruction may be affected by trainee and instructor time, use of equipment, materials and facilities. 15

G. Demand (Persistence of ... for trained personnel) - the long-term job requirement for trained workers may influence the use of one training setting over another. 16

H. Time (Need to minimize training ...) - most instances dictate a need to minimize training time, for example, when "the demand for trained personnel far exceeds the supply". Consequently, the training method chosen may impact upon the amount of time allocated for developing an individual's skills. 17

I. Business Cycle (State of ...) - the extent to which the economy is able to support full employment for all those desiring to work. "The health of the economy affects everyone, but the impacts are greatest for the groups in the labor force that are least prepared for or capable of work and least desired by employers." (Levitan & Taggart, 1977, p. 95) 18

J. Frequency - tasks that are performed frequently by most job incumbents at a given skill level are prime candidates for inclusion in most training programs, and conversely, tasks that are performed infrequently, should be eliminated from some training programs. 19

K. Criticality - for example, if a task must be accomplished in an emergency and if the probability of being able to perform the task adequately without training is low, a major question may be which method of training will best prepare the trainee to perform essential skills under high risk conditions. 20

L. Quality Control - IEP decision-makers have an interest in making the appropriate choices among the skill development sources to insure there is a high degree of probability that the trainee will learn to produce work of acceptable quality in a reasonable period of time. 21

M. Instrumentality - refers to skills in reading, computing and communicating which are difficult to teach in conjunction with most occupational/vocational training programs. The kinds of jobs which will be available to the trainee should be analyzed to determine which adjunct skills are necessary for further learning or for adapting to job changes. 22

N. Prior Experience - strongly related to the amount of time a person requires to learn job tasks is the amount of prior experience s/he has had in acquiring job relevant behavior. 23

O. Abilities and Aptitudes - the choice of training method has often been determined by the abilities and aptitudes of trainees. The expected development of individuals in a specific aptitude is considered by most experts to be an educated guess. Consequently, this makes difficult the choice of training methods for individuals according to their abilities and aptitudes. 24

P. Disabilities - it is believed that a trainee's type of disability will have a significant influence upon the length of time required to attain a desired level of competence. Therefore, the choice of training setting will be influenced by the trainee's handicap. 25

Q. Learning Modes (Preferred ...) - the trainee's preference for a specific method of training to acquire specified competencies should be taken into consideration when the circumstances permit. 26

R. Passage of Time - the time interval between completion of training and the initial performance at work may have an impact on qualitative, long-term performance on-the-job. Some researchers have generalized that handicapped trainees who receive on-the-job training seldom require retraining, regardless of time interval between training and placement. 27

S. Screening Device - in some job training programs time is allocated for the comp' tion of security checks and for assessing the reliability of the trainee's performance in difficult situations which arise infrequently on-the-job. 28

T. History and Pragmatism - empirical data are seldom used when deciding whether to teach a competence on-the-job or in a classroom/laboratory setting. Some training authorities use their experience in deciding which training method to use in a particular case. However, there are authorities from the other "camp" who chose the training method based on tradition, i.e. "they had always done it that way". 29

U. Evaluation - appraisal of the quality of training provided during the course of instruction. 30

V. Uniformity - trainees can be required to learn all types of tasks they need to perform on-the-job, but the method of training which best prepares the trainee to perform these tasks in a standardized manner must be considered. 31

W. Complexity - most teachers/instructors believe there are two major components to learning difficulty: first, the difficulty of the task and second, the difficulty of learning due to trainee characteristics. For example: complex tasks are usually more difficult to learn because of the importance to marry principles and procedural sequences while developing motor skills. 32

X. Performance (Judgement of ... of graduates) - the preference of one training method over another may be determined by the performance of graduates after placement on-the-job. 33

Y. Ports of Entry - some occupational entry is controlled by state/federal licensing boards and the amount and method of training is regulated by these agencies. 34

Z. Solicitude - handicapped trainees, depending upon prior training and experience, may seek or ask for more support than their handicap appears to warrant. Normally, this over dependence is due to excessive care or concern by others in the past. Authorities choosing the training setting must weigh this factor in their decision-making process. 35

AA. Job Title _____ [ ] 36 - 44

AB. Total Months in Present Job _____ [ ] 45 - 47

AC. Agency _____ [ ] 48 - 50

AD. City/Town and State _____ [ ] 51 - 53

AE. Handicap Population Experience _____ [ ] 54 - 55

Thank you for your participation. If you are interested in a copy of the final report, please provide your name and address.

Name _____

Address _____

State/Zip Code _____

APPENDIX F

PROCEDURAL GUIDE - AUTHORITY STUDY

Vocational and Technical Education
Bureau of Educational Research
University of Illinois

CODE BOOK FOR DATA ANALYSIS
Study #35, #235, & #335

Criteria, Instruction of Persons with Handicaps

This study is being conducted by the Bureau of Educational Research to identify and quantify criteria used by human service delivery professionals when selecting vocational training methods for handicapped persons. That is, are the skills and knowledge best acquired in a classroom-laboratory environment, through on-the-job training, or through a combination of these? The questions to be answered by the data collected are:

1. What criteria are currently used for deciding if the handicapped are best taught a skill on-the-job or best taught in a school-like setting?
2. How do these criteria vary with type and severity of handicap?
3. How should these criteria and the use of these criteria be modified to increase client competence and aid advancement throughout the continuum leading to employment and promotion for the handicapped?

Survey Research Laboratory (SRL) is keypunching and analyzing the data from the questionnaire. The standard conventions apply for study #35:

1. Codes '0', '00', '000' etc. are for none or zero.
2. Codes '9', '99', '999' etc. are for no answer or no data.
3. Codes '8', '98', '998' etc. are for unknown or don't know.
4. Codes '7', '97', '997' etc. are for indefinite.
5. Codes '96', '996' etc. are for numerical responses that exceed the column code limit.
6. Numerical responses to open-ended questions. When coding responses which do not fill the column code limit, add leading zeros to the response up to the column code limit.

7. Percentages: When coding responses given as a percentage, add two leading zeros for one digit responses (e.g., 008%) and one leading zero for two digit responses (e.g., 014%).

8. Range of data: If ranges are given, the midpoint is used, i.e., 5-9 would be "7" or 5-8 would be "7".

9. Rounding of data: If rounding is necessary, round down when less than .5 and up for more than .5.

10. NA - Not applicable responses. Leave responses blank.

The standards for coding the confidence codes are as follows:

a. Code '1' is a firm or sure response with only one answer given.

b. Code '2' is a changed response which is recorded when two or more answers are given at first and a final answer is given by the respondent after negotiating or gaining additional definitive information.

c. Code '3' is an unsure response. This code is used when the respondent gives multiple responses from which a best possible "guess" is given.

d. Code '4' is a delayed response which means that the respondent had to locate or acquire the relevant data.

e. Code '5' is a refused response, that is, when the respondent does not have time to gain information or the data is inaccessible.

f. Code '9' is a no data or a no answer response.

g. NA - not applicable response. None of the codes are circled.

SRL will be coding only closed-ended questions. When comments are made during an interview, record those comments in the appropriate section for each question.

Unless other instructions are given, one answer code should be circled in pencil for each question. If more than one answer is volunteered ascertain

the qualifications of the respondent to give more than one response (e.g., Have you been the administrator of both an OJT and CL program?). If a respondent is qualified, note that fact in the "comment" section.

Questionnaires should be given to the investigators to be verified and filed. The coding instructions for unusual items are given on the following pages.

Coding Instructions

Question #	Deck	Col.	Instructions
1a	1	6-8	Code three-digit occupational group from Dictionary of Occupational Titles (pp. xxxvi-xli).
1b	1	9-12	This may be less than 4 digits. Add leading zeros if necessary.
1c	1	13-14	Organizations coded with a first digit of: a. "0" are sheltered workshops, b. "1" are public employers, c. "2" are private employers, d. "3" are public school vocational programs, e. "4" are community college programs, f. "5" are private school programs, and g. "6" are state funding agencies.
1d	1	15-16	Code modified two-digit community college district code from State Plan for the Administration of Vocational & Technical Education in Illinois (pp. 90-91).
4a	1	20	Code "4", if all three responses apply.
4c	1	24	Code "5", if responses 1, 2, and 4 apply.
5a(1)	1	36-40	This may be less than 5 digits.
5b(1)	1	48-50	This may be less than 3 digits.
		51-53	Add leading zeros if necessary.
		54-56	

Question #	Deck	Col.	Instructions
6a(1)	2	30-32	Code like Q. 5b(1).
		33-35	
		36-38	
6b(1)	2	47-48	This may be less than 2 digits. Add leading zeros if necessary.
6b(2)	2	50-52	Code like Q. 5b(1).
6b(3)	2	54-55	Code like Q. 6b(1).
7d(1)	3	28-30	Code like Q. 5b(1).
		31-33	
		34-36	
7e(1)	3	42-43	Code like Q. 6b(1).
7f(2)	3	67-70	Code like Q. 1b.
7f(3)	3	72-74	Code like Q. 5b(1).
7f(6)	4	8	Code "4" if all three responses are given.
7h(1)	4	20-21 &22	Do not code. See Q. 9 and code like Q. 5b(1).

Question #	Deck	Col.	Instructions
7h(1)	4	16-18	Code like Q. 5b(1).
		23-25	
7i(1)	4	34-36	Code like Q. 1a.
		37-39	
		40-42	
7i(2)	4	44-46	Code like Q. 1a.
		48-50	
		52-54	
		57-59	
		61-63	
		65-67	

Organization Identity Code
(Authority)

Organization	Frequency	Code
Ray Graham Assoc. for Handicapped	////	01
Bloomington Occupational Development Ctr.	//	02
Developmental Services Center Workshop Program, Champaign	/////	03
Developmental Services Center Foodservice Program	/	04
Training Wing - Graphics Div. - USAF	/	10
Training Aids Division - Chanute AFB	/	11
Staffing Section, Civ. Personnal Chanute AFB	/	12
Placement & Testing U of I	/	13
Rehab. Education Center, U of I	//	14
Public Broadcasting Sta., U of I	/	15
Personnel Office, U of I	/	16
Life Science, U of I	/	17
Tech. Training, USAF - Chanute	/	18
Sears Roebuck Co.	/	20
Vetter Fairing Co.	/	21
Marc Gold & Associates	/	22
Ace Janitorial Contractors - Chanute AFB	/	23
Webster's Food Contractors - Chanute AFB	/	24
Illinois Bell Telephone Co.	//	25
State Farm Insurance	/	26
General Telephone Co.	/	27
Construction Engr. Research Lab.	/	28
Centennial H.S., Champaign	/	3D
Decatur Eisenhower H. S.	///	31
Bloomington Area Vocational Center	/	32
Decatur Area Vocational Center	////	33
Springfield Public Schools	//	34
Stephan Decatur H.S.	//	35
Edwardsville H. S.	/	36

Organization	Frequency	Code
East Central/DSC Workstudy	/	37
Parkland College	/////	41
Hadley School for Blind	//	51
Chicago Lighthouse for the Blind	/	52
Minnesota Society for the Blind	//	53
D.V.R., Champaign & Bloomington	////	61
DMHDD	/	62

Minneapolis, Minnesota (41)

1980

On the basis of our telephone conversation, you have been scheduled for an interview with _____ on _____ 1980 at _____. If this date and time is no longer convenient, please contact our office at (AC 217)333-1450 or, after 9:30 P.M., (AC 217) 328-4011.

We have provided an enclosure for your review prior to the interview. We believe this information will familiarize you with the study to date, and will assist you in fulfilling your role as a consultant and respondent.

Sincerely yours,

Alain Hunter
Research Assistant to Rupert N. Evans,
Acting Director, Bureau of
Educational Research

AH:jn
Enclosure

APPENDIX G

PROCEDURAL GUIDE - WORKER STUDY

I. POLICY FOR THE STUDY

Objectives and Significance

To identify criteria which are used for the selection of training settings (methods) for job competency development of persons with handicaps.

Since most job competency development has been conducted via vocational training programs operated by schools and employers, it is conceivable that these agencies, when considering methods of training persons with handicaps may falsely assume and accept traditional views and beliefs about the criteria to be assessed when choosing a training setting. At present this selection process in choosing a training setting is based primarily on the decisions of nonhandicapped authorities. It is the belief of most advocates that decision-making is an essential part of a handicapped person's daily life. Therefore, this investigator seeks to gain from handicapped workers the identity of criteria they experienced when a training setting for their current employment was chosen. The data that are supplied from these personal interviews may confirm or refute the views and/or beliefs of the traditional authorities who choose the training settings. The findings could make a difference in the decision process of selecting training settings for handicapped trainees both in the schools and at the work sites.

Respondents' Participation

Respondents will be chosen through personal contact by the investigator. One method to be used will be to identify respondents through the services of agencies, e.g., Illinois Offices of the Department of Vocational Rehabilitation and the nonprofit organization: The Developmental Services Center of Champaign, Illinois. These agencies will review the proposal and select potential respondents based on the specifications. The agencies will contact

the identified person and apprise them of the study. If the persons are interested in participating as respondents, they will be given a telephone number of the investigator for contact and confirmation of interest. (Cost of communications will be borne by the investigator.) This respondent will be interviewed and asked to supply additional names of persons who, in their opinion, would be interested in participating in the study. The respondent will be requested to make contact with their "referral" and to give this person the telephone number of the investigator for making arrangements to be interviewed. This latter method will, it is hoped, promote a sampling of a friendship network which will lead to additional networks and a larger sample size. An alternative to this procedure is to have postage paid postcards returned to the investigator as a form of agreement.

Procedures

For the first interview the respondents will be given an appointment with a trained interviewer at a time and place that is acceptable to the respondent. After gaining sufficient rapport with the respondent, the interviewer will use the attached questionnaire to ask the respondent questions pertaining to the study. Depending upon the respondent's impairment, the interview period will be 60 to 90 minutes, independent of interruptions. For the second interview, the respondents will be telephoned and asked to participate in a follow-up telephone interview. If agreement is obtained, an appointment will be made for a call-back and a copy of the questionnaire to be used in recording the data (or a cassette tape of the questionnaire) will be mailed to the respondent for completion prior to the call-back appointment. If literacy is a barrier to this procedure, an in-person appointment will be made. The interview period for this study should not exceed five minutes except when a literacy barrier may exist.

Confidentiality of Data

The interviewers will be trained to comply with a standard, uniform procedure for interviewing respondents and for controlling the content of questionnaires. The investigator has established a check in/out accounting procedure from a lockable file cabinet repository that permits constant monitoring of each questionnaire. The most stringent control is exercised on the first two pages of the questionnaire (Study #135) which are the only records of the respondents' identification. The functions of these pages are: (a) The first page will be used by the investigator for administering his tasks prior to assigning the interviewer (this page will be retained by the investigator). (b) The second page will be used by the interviewers to administer their tasks. When they have completed their assignment, they will return the questionnaire to the investigator (with second page affixed). The investigator will remove the second page from the questionnaire after reviewing the content for completeness. When all of the questionnaires have been returned, the investigator will remove and destroy, by shredding, all pages which have the true identity of the respondent. The residue will be disposed of by the investigator via the University's waste disposal system.

For Study #435 the questionnaire will be returned to the investigator for appropriate disposition.

2. DATA COLLECTION

This study is being conducted to identify and quantify criteria used when selecting vocational training methods for handicapped persons, i.e., when determining whether the needed skills and knowledge are best acquired in a classroom-laboratory environment, through on-the-job training, or through a combination of these. The questions to be answered, the hypothesis to be tested, and the assumptions to be confirmed by the data collected are:

Research Questions

1. What criteria do handicapped workers report were used for deciding the training setting for development of their job competency?
2. How do these criteria vary with type of handicap?
3. How do these criteria vary with the level of complexity in training?
4. How do these criteria vary with the job for which trained?
5. What modifications to these criteria are recommended and why?
6. Which method of training do handicapped workers feel has the greatest influence upon individual placement or opportunities for advancement?

Hypothesis

The hypothesis of this study is that persons with handicaps who have attained tenure and are in prime jobs, i.e., jobs which lead to promotion and career progression, will report that they received their training in a combination of training setting, e.g., classroom-laboratory instruction followed by on-the-job training or in conjunction with on-the-job training.

Assumptions

1. Most handicapped persons do not have equitable training opportunities.
2. The handicapped persons, when suitably trained, can contribute as much to the employer as a nonhandicapped person.

3. The placement of the handicapped trainee in suitable training settings will be contingent upon the decisions of authorities other than the trainee concerned.
4. The responses by the respondents to the questions of the interviewers are accurate and valid.

Data Coding and Coordination - Study #135

--- Survey Research Laboratory (SRL) will keypunch and consult on the data from the questionnaire. The following standard conventions apply to questions --

a. Codes '0', '00', '000' etc. are for none or zero;
b. Code '9' in the "confidence code" means no data available (see next section);
c. Codes '8', '98', '998' etc. are for unknown, don't know, no opinion;
d. Codes '97', '997' etc. are for indefinite;
e. Codes '96', '996' etc. are for numerical responses that exceed the column code limit;
f. Numerical responses to open-ended questions: when coding responses which do not fill the column code limit, leading zeros are added to the response up to the column code limit;
g. Range of data: if ranges are given, the midpoint is used, i.e., 5-9 would be "7" or 5-8 would be "7";
h. Rounding of data: if rounding is necessary, .5 and less than .5 are rounded down and more than .5 is rounded up;
i. NA - Not applicable responses: responses are left blank.

Confidence Codes - Study #135

Note: If multiple responses to the questions are to be recorded, the manner in which the majority of the responses are given will determine the confidence code.

The standards for coding the confidence codes are as follows:

a. Code '1' is a firm or sure response with only one answer given.

b. Code '2' is a changed response which is recorded when two or more answers are given at first and a final answer is given by the respondent after negotiating or gaining additional definitive information.

c. Code '3' is an unsure response. This code is used when the respondent gives multiple responses from which a best possible "guess" is given.

d. Code '4' is a refused response, that is, when the respondent has the information but does not desire to respond to the question.

e. Code '9' is a no data or a no answer response.

f. NA - not applicable response. None of the codes are circled.

Procedure - Study #135

When comments are made during an interview, those comments are recorded in the appropriate section for each question or on the reverse side of the page.

Unless other instructions are given, one answer should be circled in pencil for each question.

Questionnaires should be returned to the investigator to be verified and filed. The coding instructions for unusual items are given on the following pages.

Coding Instructions - Study #135

Question #	Deck	Column	Instructions
1a	1	7-15	Code with D.O.T. nine-digit occupational code.
1b	1	16-18	If less than three digits, add leading zeros.
1c	1	19-21	Organizations coded with a first digit of: "0" - sheltered workshop "1" - public owned. "2" - Private owned "3" - public/private school vocational education "4" - public/private two/four year college "5" - private school "6" - government.
1d	1	22-24	Code with modified two-digit community college district code.
4	1	29	Code responses identically to "variable 127"
5a(3)	1	32	Do not code.
5e(5)-5e(8)	1	67-73	Do not code.
6a(1)(e)-6a(1)(i)	2	14-18	Do not code.
7d(2)	4	19-22	Adjusted to current inflation level; 235 "work" days per year; 8 hour work day or 20 "work" days/month.
8f(2)	4	55-58	Estimate 235 "work" days per year. If response exceeds 0090, "variables 460 through 474" will be coded (i.e. Q. 8f(3) - 8f(7)).

Question #	Deck	Column	Instructions
8i(3)	5	16	If response is 3, "variables 518 through 521" may be coded (i.e. Q. 8i(4) - 8i(5)).
10a(1)	5	55	If response is 1, "variable 557 and 558" will be coded (i.e. Q. 10a(2)).
10a(3)-10a(5)	5	59-65	If responses were 2, 3, 5, or 5 in Q. 10a(1), these variables will also be coded.
10b(7)	6	13-15 16-18 19-21 22-24	Code with D.O.T. three-digit occupational group.
11i	7	4-12 17-25 30-38 43-51	Code with D.O.T. nine-digit occupational code.
11i	7	14-16 27-29 40-42 53-55	If less than three digits, add leading zeros.

Procedures & Coding Instructions - Study #435

Section I. Administrative. will be completed by the interviewer. The data for items 1 through 5 will be extracted from Study #135. Upon completion of the interview, questionnaires should be returned to the investigator for verification and filing.

One answer should be circled in pencil for each question. The coding instructions are contained in the instructions to the respondent. Pertinent comments should be recorded on the last page of the questionnaire.

3. REFERENCES

1. Klecka, W.R., Nie, N.H. & Hull, C.H. SPSS Primer. New York: McGraw-Hill, 1975.

2. State of Illinois. State Plan for the Administration of Vocational and Technical Education in Illinois, 1980.

3. U. S. Department of Labor. Dictionary of Occupational Titles (4th ed.) Washington, D.C.: U. S. Government Printing Office, 1977.

1. Description of Handicapping Condition of Trainees

   a. Area of handicap:

      (1) Physical deficit - loss of ability to move part or parts of body, paralysis.

      (2) Cognitive deficit - mental retardation

      (3) Visual deficit - loss of peripheral vision, restriction of visual field. blind in both eyes.

      (4) Auditory deficit - hard of hearing. deafness with understandable speech, deafness and unable to speak clearly.

      (5) Emotional deficit - mental or emotional illness. history of treatment for either mental or emotional illness.

      (6) Speech deficit - aphasia, articulation errors, stuttering.

      (7) Multiple deficit (specify). _____

      _____

      _____

   b. Level of handicap:

      (1) Mild - capable of independent functioning when guidance and training are provided.

      (2) Moderate - usually capable of attaining semi-independent functioning when considerable training and assistance are provided.

      (3) Severe - usually remains dependent, requiring training in all areas of functioning, e.g., basic hygiene. language. and social competence.

2. Description of Training Received

"Training" is the minimum acceptable personal development required for job placement or job advancement. It involves the place where, the time in which, and the methods by which required physical and mental skills and knowledges and attitudes are developed.

"On-the-job training" (OJT) encompasses all self-study knowledge and job experience acquired by a trainee as a result of working at his or her assigned job.

"Classroom/laboratory training" (CL) is traditional or conventional classroom or laboratory instruction in which the instructor and student regularly meet at a specific time and place for the primary purpose of teaching and learning.

"Combination" (COMB) is training received in both settings, OJT and CL.

Organization Identity Codes

Organization Label	Code
University - Staff	10
County Public Aid Office	11
School District Office - Staff	12
Mass Transit, Large City	13
State Teacher Certification Office	14
Comprehensive High School - Faculty	15
Medical Health Center	16
University - Faculty	17
Motel/Lodge	20
Automobile Dealership	21
Board of Trade, Large City	22
Radio/TV Station	23
Telephone Co., R&D Lab.	24
Lumber Co.	25
Corporate Law Firm	26
Kitchen Cabinet Manufacturer	27
Agriculture Service	28
Insurance Agency	29
Sheltered Workshop - Staff/Faculty	30
Public Affairs Office - University	40
Federal Highway Agency	60
Federal Hospital	61
Heating, Air & Ventilation Co.	210

Occupational Identity Codes

Job Label	Nine-Digit DOT Code
Electrical Technician	003 161 010
Civil Engineer	005 061 014
Structural Engineer	005 061 034
Director of Counseling	045 107 018
Psychologist, Counseling	045 107 026
Counselor, Vocational Rehabilitation	045 107 042
Speech Pathologist	076 107 010
Recreational Therapist	076 124 014
Medical Assistant	079 367 010
Faculty Member, College	090 227 010
Instructor, Extension Work	090 227 018
Secondary Education Teacher	091 227 010
Librarian, Children's	092 167 018
Elementary Education Teacher	092 227 010
Teacher, Mentally Retarded	094 227 022
Certification and Selection Specialist	099 167 010
Lawyer, Corporate	110 117 022
Producer, Radio/Television	159 117 010
Radio Announcer/TV Producer	159 147 010
Disk Jockey	159 147 014
Accountant	160 167 010
Accountant, Budget	160 167 014
Public Relations Specialist	165 067 010

Job Label	Nine-Digit DOT Code
Office Manager for Automotive Dealership	169 167 010
Office Manager	169 167 034
Order Department Supervisor/Office Manager	169 167 038
Production Superintendent	183 117 014
Director, Institution	187 117 018
Director, Sheltered Workshop	187 117 026
Supervisor, Volunteer Services	187 137 014
Caseworker	195 107 014
Social Worker	195 107 030
Day Camp Director	195 167 018
Transcription Secretary & Office Manager	202 132 010
Typist	203 582 066
Supervisor, Coding Clerks	209 137 022
Account-Information Bookkeeper	210 367 010
Data Processing Operator	213 685 010
Accounting Clerk	216 382 010
Dispatcher, Maintenance Service	239 367 014
Evaluator	249 367 034
Sales Representative	259 357 018
Commission Agent, Agricultural	260 357 010
Manager, Building Equipment and Supplies	274 357 018
Sales Representative, Hardware Supply	274 357 034
Produce Stock Clerk	299 367 014
Yard Worker	301 687 014

Job Label	Nine-Digit DOT Code
Restaurant Dishwasher	318 687 010
Cleaner, Housekeeper	323 687 014
Rifleman, Military Services	378 684 014
Janitor	382 664 010
Sorter, Agricultural Produce	529 687 186
Nut-Bolt Assembler	929 587 010

Geographic Identity Codes

University of Illinois at Urbana-Champaign

COLLEGE OF EDUCATION • BUREAU OF EDUCATIONAL RESEARCH • 188 EDUCATION BUILDING • URBANA, ILLINOIS 61801
(217) 333-3023

Dear

The Bureau of Educational Research is a unit of the College of Education at the University of Illinois. It provides consulting service to persons in schools and industries and conducts research on school, community and industry interaction in our society.

The Bureau is currently investigating how vocational skills are taught to persons with handicaps. Therefore, we are seeking training information from a selected group of employed, disabled persons who have been employed, without interruption, for two or more years.

In order to conduct this investigation we request the assistance of the as a consultant to assist us in identifying former clients to be interviewed who have the cited qualifications. If these persons are willing to be interviewed, they would participate in an interview of 45 to 90 minutes.

The purpose of the interview is to obtain information from these respondents about their experiences when they were in the selection process of choosing a training setting (classroom/laboratory, on-the-job or a combination of the two) to best prepare them for job placement.

We believe their information, combined with our current findings (enclosure 1) will assist training authorities, parents, and advocates of handicapped persons when selecting the most appropriate pre-job training setting.

It is the belief of most advocates that decision-making about one's self is an essential part of an handicapped person's adjustment to the "real" world. Therefore, it is the opinion of the investigators that a need exists to gain expert opinions from cited former clients who are employed persons with disabilities that have experienced the pain, fear, and loneliness of being different. The criteria and the problems these experienced workers identify and report, based on the training selected for their skill development, may confirm or be uniquely different from the views and/or beliefs of the traditional authorities (enclosure 1) who choose the training settings. This study may provide additional criteria to be considered when developing individualized education plans for persons with handicaps. Our procedures for this investigation will be as follows.

First, this investigation is nonexperimental, descriptive research. It will be directed toward gathering data from past consumers of training who are disabled and are tenured employees in the workforce. (Tenure for the purpose of this investigation is twenty-four consecutive months or longer in the work force and currently employed.) The data will be collected by individual interview. There will be semi-structured standards imposed to permit generalizable formulations to be derived but with a degree of latitude which permits some in-depth probing of topics. These topics may be influenced by the respondents.

Second, the respondents will be obtained by means of a modified form of "referral sampling" (for an example of agency referral, see enclosure 2) which seems to be the most reasonable approach for reaching a widely dispersed, low density, and socially inconspicuous population for whom no central reference is available. Fifty or more persons from a variety of agencies, companies, and institutions in Illinois will be sought by branching nominations, i.e., an agency or individual will provide the name of an individual who might meet the prerequisites for inclusion in the survey. The target population must be disabled and job tenured.

The investigators have recently reported our findings in a presentation to members of the Pennsylvania Personnel and Guidance Association. A similar program was presented to the Guidance Division of the American Vocational Association in December 1979. A more up-to-date presentation will be given in the Spring of 1980 to the American Rehabilitation Counseling Association in Atlanta, Georgia.

It is our hope to disseminate through state and national professional organizations some of the knowledge we have acquired about the training of persons with handicaps. We would like to cite the type of agencies, such as yours, which have contributed to this investigation.

We would like to re-emphasize that the participation of former clients of the Department is strictly voluntary, and the "confidentiality" of their identity will be maintained at all times.

of the office has been our contact in pursuit of your approval.

We would appretiate your assistance. Thank you.

Sincerely,

Alain Hunter
Research Assistant to Rupert N. Evans,
Acting Director, Bureau of Educational
Research

AH:ls

Enclosures

DIVISION OF REHABILITATION EDUCATION SERVICES | University of Illinois
Rehabilitation-Education Center

Office of the Director

Oak Street at Stadium Drive, Champaign, Illinois 61820

Dear

The University's Bureau of Educational Research is seeking information from former students of the Rehabilitation-Education Center who have been employed, continuously, for two or more years. I would like to recommend vou as a potential participant, but strictly on a voluntary basis. Be assured, you will not be contacted unless you complete and return the enclosed card to the Bureau.

I feel most confident that this is a ptoject which would be of interest to you and to which you can mzke a definite contribution.

I extend my sincere thanks to you fot your response to this request.

Best personal regatds.

Joseph F. Konitzki
Associate Director

JFK:ls

Enclosure

University of Illinois at Urbana-Champaign

COLLEGE OF EDUCATION · BUREAU OF EDUCATIONAL RESEARCH · 188 EDUCATION BUILDING · URBANA, ILLINOIS 61801
(217) 333-3023

Dear

The Bureau of Educational Research is a unit of the College of Education at the University of Illinois. It provides consulting service to persons in schools and industries and conducts research on school, community and industry interaction in our society.

The Bureau is currently investigating how vocational skills are taught to persons with handicaps. Therefore, we are seeking training information from a selected group of employed, disabled persons who have been employed, without interruption, for two or more years.

In a structured interview of 45 to 90 minutes I would like you to share your experiences when you were in the selection process of choosing a training setting (classroom, on-the-job, or a combination of the two) which lead to your initial job placement. The information you provide will assist training authorities, parents, and advocates of handicapped persons when selecting the best training setting for job placement.

Your participation is strictly voluntary and the "confidentiality" of your identity will be maintained at all times. I have enclosed a postcard. If you are willing to participate, please fill-in and sign your name and mail to me. Your participation and contribution to this investigation will provide important and useful information about how one should choose among the available training settings to train effectively a handicapped person for the future.

The time and place of interview will be at <u>your</u> convenience. Thank you for your assistance.

Alain Hunter
Research Assistant to Rupert N. Evans,
Acting Director, Bureau of Educational
Research

AH:am
Enclosure

I, , will be available to be interviewed for the project: "Criteria Identified for the Selection of the Training Setting".

(Signature)

U.S.Postage 10¢

BUREAU OF EDUCATIONAL RESEARCH
COLLEGE OF EDUCATION
UNIVERSITY OF ILLINOIS
URBANA, ILLINOIS 61801

VOCATIONAL AND TECHNICAL EDUCATION, BUREAU OF EDUCATIONAL RESEARCH

UNIVERSITY OF ILLINOIS

T-E-L-E-P-H-O-N-E I-N-T-E-R-V-I-E-W

For Office Use
Quest # _____
Study # _____

_____

(Short Title of Study)

Person Called (last name, first, m.i.) _____

Telephone # (AC _ _ _) _____

Initial Contact: / /80 Willing Participant? YES NO (circle one)

Remarks: _____

Questionnaire mailed: / /80 Data Collected: / /80

- Standard Conversation -

Hello (Good ...). May I please speak to _____? My name is
(person called)
_____ and I am calling from the Bureau of Educational Research at the University of Illinois. In 19(78), (79), or (early 80) you were interviewed by a member of our project staff. The subject of the interview was the selection of the training setting for persons with handicaps, i.e. the identification of criteria used in the process of selecting an appropriate training setting for the vocational development of handicapped persons.

As a follow-up to that interview, we are now conducting a telephone survey of those respondents to obtain their assistance in validating (quantifying) those criteria.

Would you be willing to grant us another thirty minutes of your time at a time and place that is most convenient to you?

[If no!] Thank you very much for your participation, and we will send you a copy of our final report in August 1980.

[If Yes! or a "conditional" yes/no!] Thank you for participating. Our procedure will be to first, send you a questionnaire; it will take no longet than fifteen minutes to review. Second, we would like to call you at your convenience within the next five days to obtain your responses to the questionnaire.* (You may destroy the questionnaire after this call.)

When would it be convenient to call you: Date? __/ /80; time? _____ ; and telephone number? (AC _ _ _) _____.

Thank you for participating in our study. We will mail your questionnaire (today) and will call you on (date)__/ /80 at (time) _____ with telephone number (AC _ _ _) _____.

*Note: If the respondent is sight impaired, advise respondent that a "taped" questionnaire will be provided.

SUMMARY LISTING OF OCCUPATIONAL CATEGORIES, DIVISIONS, AND GROUPS

OCCUPATIONAL CATEGORIES

0/1 Professional, technical, and managerial occupations
2 Clerical and sales occupations
3 Service occupations
4 Agricultural, fishery, forestry, and related occupations
5 Processing occupations
6 Machine trades occupations
7 Benchwork occupations
8 Structural work occupations
9 Miscellaneous occupations

TWO-DIGIT OCCUPATIONAL DIVISIONS

PROFESSIONAL, TECHNICAL, AND MANAGERIAL OCCUPATIONS

00/01 Occupations in architecture, engineering, and surveying
02 Occupations in mathematics and physical sciences
04 Occupations in life sciences
05 Occupations in social sciences
07 Occupations in medicine and health
09 Occupations in education
10 Occupations in museum, library, and archival sciences
11 Occupations in law and jurisprudence
12 Occupations in religion and theology
13 Occupations in writing
14 Occupations in art
15 Occupations in entertainment and recreation
16 Occupations in administrative specializations
18 Managers and officials, n.e.c.
19 Miscellaneous professional, technical, and managerial occupations

CLERICAL AND SALES OCCUPATIONS

20 Stenography, typing, filing, and related occupations
21 Computing and account-recording occupations
22 Production and stock clerks and related occupations
23 Information and message distribution occupations
24 Miscellaneous clerical occupations
25 Sales occupations, services
26 Sales occupations, consumable commodities
27 Sales occupations, commodities, n.e.c.
29 Miscellaneous sales occupations

SERVICE OCCUPATIONS

30 Domestic service occupations
31 Food and beverage preparation and service occupations
32 Lodging and related service occupations
33 Barbering, cosmetology, and related service occupations
34 Amusement and recreation service occupations
35 Miscellaneous personal service occupations
36 Apparel and furnishings service occupations
37 Protective service occupations
38 Building and related service occupations

AGRICULTURAL, FISHERY, FORESTRY, AND RELATED OCCUPATIONS

40 Plant farming occupations
41 Animal farming occupations
42 Miscellaneous agricultural and related occupations
44 Fishery and related occupations
45 Forestry occupations
46 Hunting, trapping, and related occupations

PROCESSING OCCUPATIONS

50 Occupations in processing of metal
51 Ore refining and foundry occupations
52 Occupations in processing of food, tobacco, and related products
53 Occupations in processing of paper and related materials
54 Occupations in processing of petroleum, coal, natural and manufactured gas, and related products
55 Occupations in processing of chemicals, plastics, synthetics, rubber, paint, and related products
56 Occupations in processing of wood and wood products
57 Occupations in processing of stone, clay, glass, and related products
58 Occupations in processing of leather, textiles, and related products
59 Processing occupations, n e c.

MACHINE TRADES OCCUPATIONS

60 Metal machining occupations
61 Metalworking occupations, n e c.
62/63 Mechanics and machinery repairers
64 Paperworking occupations
65 Printing occupations
66 Wood machining occupations
67 Occupations in machining stone, clay, glass, and related materials
68 Textile occupations
69 Machine trades occupations, n.e.c.

BENCHWORK OCCUPATIONS

70 Occupations in fabrication, assembly, and repair of metal products, n e c
71 Occupations in fabrication and repair of scientific, medical, photographic, optical, horological, and related products
72 Occupations in assembly and repair of electrical equipment
73 Occupations in fabrication and repair of products made from assorted materials
74 Painting, decorating, and related occupations
75 Occupations in fabrication and repair of plastics, synthetics, rubber, and related products
76 Occupations in fabrication and repair of wood products
77 Occupations in fabrication and repair of sand, stone, clay, and glass products
78 Occupations in fabrication and repair of textile, leather, and related products
79 Bench work occupations, n e.c.

STRUCTURAL WORK OCCUPATIONS

80 Occupations in metal fabricating, n e.c.
81 Welders, cutters, and related occupations
82 Electrical assembling, installing, and repairing occupations
84 Painting, plastering, waterproofing, cementing, and related occupations
85 Excavating, grading, paving, and related occupations
86 Construction occupations, n e c.
89 Structural work occupations, n e c.

MISCELLANEOUS OCCUPATIONS

90 Motor freight occupations
91 Transportation occupations, n e.c.
92 Packaging and materials handling occupations
93 Occupations in extraction of minerals
93 Occupations in production and distribution of utilities
96 Amusement, recreation, motion picture, radio and television occupations, n e c
97 Occupations in graphic art work

THREE-DIGIT OCCUPATIONAL GROUPS

PROFESSIONAL, TECHNICAL, AND MANAGERIAL OCCUPATIONS

00/01 Occupations in architecture, engineering, and surveying
001 Architectural occupations
002 Aeronautical engineering occupations
003 Electrical/electronics engineering occupations
005 Civil engineering occupations
006 Ceramic engineering occupations
007 Mechanical engineering occupations
008 Chemical engineering occupations
010 Mining and petroleum engineering occupations
011 Metallurgy and metallurgical engineering occupations
012 Industrial engineering occupations
013 Agricultural engineering occupations
014 Marine engineering occupations
015 Nuclear engineering occupations
017 Drafters, n e c.
018 Surveying/cartographic occupations
019 Occupations in architecture, engineering, and surveying, n.e.c.

02 Occupations in mathematics and physical sciences
020 Occupations in mathematics
021 Occupations in astronomy
022 Occupations in chemistry
023 Occupations in physics
024 Occupations in geology
025 Occupations in meteorology
029 Occupations in mathematics and physical sciences, n e.c.

04 Occupations in life sciences
040 Occupations in agricultural sciences
041 Occupations in biological sciences
045 Occupations in psychology
049 Occupations in life sciences, n e c.

05 Occupations in social sciences
050 Occupations in economics
051 Occupations in political science
052 Occupations in history
054 Occupations in sociology
055 Occupations in anthropology
059 Occupations in social sciences, n e c.

07 Occupations in medicine and health
070 Physicians and surgeons
071 Osteopaths
072 Dentists
073 Veterinarians
074 Pharmacists
075 Registered nurses
076 Therapists
077 Dietitians
078 Occupations in medical and dental technology
079 Occupations in medicine and health, n.e.c.

09 Occupations in education
090 Occupations in college and university education
091 Occupations in secondary school education
092 Occupations in preschool, primary school, and kindergarten education
094 Occupations in education of the handicapped
096 Home economists and farm advisers
097 Occupations in vocational education, n.e c.
099 Occupations in education, n e c.

10 Occupations in museum, library, and archival sciences
100 Librarians
101 Archivists
102 Museum curators and related occupations
109 Occupations in museum, library, and archival sciences, n.e c.

11 Occupations in law and jurisprudence
110 Lawyers
111 Judges
119 Occupations in law and jurisprudence, n e c.

12 Occupations in religion and theology
120 Clergy
129 Occupations in religion and theology, n e c.

13 Occupations in writing
131 Writers
132 Editors: publication, broadcast, and script
137 Interpreters and translators
139 Occupations in writing, n e c.

14 Occupations in art
141 Commercial artists, designers and illustrators, graphic arts
142 Environmental, product, and related designers
143 Occupations in photography
144 Fine artists: painters, sculptors, and related occupations
149 Occupations in art, n e c.

15 Occupations in entertainment and recreation
150 Occupations in dramatics
151 Occupations in dancing
152 Occupations in music
153 Occupations in athletics and sports
159 Occupations in entertainment and recreation, n e c.

16 Occupations in administrative specializations
160 Accountants and auditors
161 Budget and management systems analysts occupations
162 Purchasing management occupations
163 Sales and distribution management occupations
164 Advertising management occupations
165 Public relations management occupations
166 Personnel administration occupations
168 Inspectors and investigators, managerial and public service
169 Occupations in administrative specializations, n e c.

18 Managers and officials, n.e.c.
180 Agriculture, forestry, and fishing industry managers and officials
181 Mining industry managers and officials
182 Construction industry managers and officials
183 Manufacturing industry managers and officials
184 Transportation, communication, and utilities industry managers and officials
185 Wholesale and retail trade managers and officials
186 Finance, insurance, and real estate managers and officials
187 Service industry managers and officials
188 Public administration managers and officials
189 Miscellaneous managers and officials, n e c.

19 Miscellaneous professional, technical, and managerial occupations
191 Agents and appraisers, n e.c.
193 Radio operators
194 Sound, film, and videotape recording, and reproduction occupations
195 Occupations in social and welfare work
196 Airplane pilots and navigators
197 Ship captains, mates, pilots, and engineers
198 Railroad conductors
199 Miscellaneous professional, technical, and managerial occupations, n e c.

CLERICAL AND SALES OCCUPATIONS

20 Stenography, typing, filing, and related occupations
201 Secretaries
202 Stenographers
203 Typists and typewriting-machine operators

205 Interviewing clerks
206 File clerks
207 Duplicating-machine operators and tenders
208 Mailing and miscellaneous office machine operators
209 Stenography, typing, filing, and related occupations, n e c

21 **Computing and account-recording occupations**
210 Bookkeepers and bookkeeping-machine operators
211 Cashiers and tellers
213 Electronic and electromechanical data processors
214 Billing and rate clerks
215 Payroll, timekeeping, and duty-roster clerks
216 Accounting and statistical clerks
217 Account-recording-machine operators, n e c
219 Computing and account-recording occupations, n e c

22 **Production and stock clerks and related occupations**
221 Production clerks
222 Shipping, receiving, stock, and related clerical occupations
229 Production and stock clerks and related occupations, n e c

23 **Information and message distribution occupations**
230 Hand delivery and distribution occupations
235 Telephone operators
236 Telegraph operators
237 Information and reception clerks
238 Accommodation clerks and gate and ticket agents
239 Information and message distribution occupations, n e c

24 **Miscellaneous clerical occupations**
241 Investigators, adjusters, and related occupations
243 Government service clerks, n e c
245 Medical service clerks, n e c
247 Advertising-service clerks, n e c
248 Transportation-service clerks, n e c
249 Miscellaneous clerical occupations, n e c

25 **Sales occupations, services**
250 Sales occupations, real estate and insurance
251 Sales occupations, business and financial services
252 Sales occupations, transportation services
253 Sales occupations, utilities
254 Sales occupations, printing and advertising
259 Sales occupations, services, n e c

26 **Sales occupations, consumable commodities**
260 Sales occupations, agricultural and food products
261 Sales occupations, textile products, apparel, and notions
262 Sales occupations, chemicals, drugs, and sundries
269 Sales occupations, miscellaneous consumable commodities, n e c

27 **Sales occupations, commodities, n.e.c.**
270 Sales occupations, home furniture, furnishings, and appliances
271 Sales occupations, electrical goods, except home appliances
272 Sales occupations, farm and gardening equipment and supplies
273 Sales occupations, transportation equipment, parts, and supplies
274 Sales occupations, industrial and related equipment and supplies
275 Sales occupations, business and commercial equipment and supplies
276 Sales occupations, medical and scientific equipment and supplies
277 Sales occupations, sporting, hobby, stationery, and related goods
279 Sales occupations, miscellaneous commodities, n.e.c.

29 **Miscellaneous sales occupations**
290 Sales clerks
291 Vending and door to door selling occupations
292 Route sales and delivery occupations
293 Solicitors
294 Auctioneers
295 Rental clerks
296 Shoppers
297 Sales promotion occupations
298 Merchandise displayers
299 Miscellaneous sales occupations, n.e.c.

SERVICE OCCUPATIONS

30 **Domestic service occupations**
301 Household and related work
302 Launderers, private family
305 Cooks, domestic
309 Domestic service occupations, n e c

31 **Food and beverage preparation and service occupations**
310 Hosts/hostesses and stewards/stewardesses, food and beverage service, except ship stewards/stewardesses
311 Waiters/waitresses, and related food service occupations
312 Bartenders
313 Chefs and cooks, hotels and restaurants
315 Miscellaneous cooks, except domestic
316 Meatcutters, except in slaughtering and packing houses
317 Miscellaneous food and beverage preparation occupations
318 Kitchen workers, n e c
319 Food and beverage preparation and service occupations, n e c

32 **Lodging and related service occupations**
320 Boarding-house and lodging-house keepers
321 Housekeepers, hotels and institutions
323 Housecleaners, hotels, restaurants, and related establishments
324 Bellhops and related occupations
329 Lodging and related service occupations, n e c

33 **Barbering, cosmetology, and related service occupations**
330 Barbers
331 Manicurists
332 Hairdressers and cosmetologists
333 Make-up occupations
334 Masseurs and related occupations
335 Bath attendants
338 Embalmers and related occupations
339 Barbering, cosmetology, and related service occupations, n e c

34 **Amusement and recreation service occupations**
340 Attendants, bowling alley and billiard parlor
341 Attendants, golf course, tennis court, skating rink, and related facilities
342 Amusement device and concession attendants
343 Gambling hall attendants
344 Ushers
346 Wardrobe and dressing-room attendants
349 Amusement and recreation service occupations, n e c

35 **Miscellaneous personal service occupations**
350 Ship stewards/stewardesses and related occupations
351 Train attendants
352 Hosts/hostesses and stewards/stewardesses, n e c
353 Guides
355 Unlicensed birth attendants and practical nurses
355 Attendants, hospitals, morgues, and related health services
357 Baggage handlers
358 Checkroom, locker room, and restroom attendants
359 Miscellaneous personal service occupations, n e c

36 **Apparel and furnishings service occupations**
361 Laundering occupations
362 Dry cleaning occupations
363 Pressing occupations
364 Dyeing and related occupations
365 Shoe and luggage repairer and related occupations
366 Bootblacks and related occupations
369 Apparel and furnishings service occupations, n e c

37 **Protective service occupations**
371 Crossing tenders and bridge operators
372 Security guards and correction officers, except crossing tenders
373 Fire fighters, fire department

375 Police officers and detectives, public service
376 Police officers and detectives, except in public service
377 Sheriffs and bailiffs
378 Armed forces enlisted personnel
379 Protective service occupations, n e c

38 **Building and related service occupations**
381 Porters and cleaners
382 Janitors
383 Building pest control service occupations
388 Elevator operators
389 Building and related service occupations, n e c

AGRICULTURAL, FISHERY, FORESTRY, AND RELATED OCCUPATIONS

40 **Plant farming occupations**
401 Grain farming occupations
402 Vegetable farming occupations
403 Fruit and nut farming occupations
404 Field crop farming occupations, n e c
405 Horticultural specialty occupations
406 Gardening and groundskeeping occupations
407 Diversified crop farming occupations
408 Plant life and related service occupations
409 Plant farming and related occupations, n e c

41 **Animal farming occupations**
410 Domestic animal farming occupations
411 Domestic fowl farming occupations
412 Game farming occupations
413 Lower animal farming occupations
418 Animal service occupations
419 Animal farming occupations, n e c

42 **Miscellaneous agricultural and related occupations**
421 General farming occupations
429 Miscellaneous agricultural and related occupations, n e c

44 **Fishery and related occupations**
441 Net, seine, and trap fishers
442 Line fishers
443 Fishers, miscellaneous equipment
446 Aquatic life cultivation and related occupations
447 Sponge and seaweed gatherers
449 Fishery and related occupations, n e c

45 **Forestry occupations**
451 Tree farming and related occupations
452 Forest conservation occupations
453 Occupations in harvesting forest products, except logging
454 Logging and related occupations
455 Log grading, scaling, sorting, rafting, and related occupations
459 Forestry occupations, n e c

46 **Hunting, trapping, and related occupations**
461 Hunting and trapping occupations

PROCESSING OCCUPATIONS

50 **Occupations in processing of metal**
500 Electroplating occupations
501 Dip plating occupations
502 Melting, pouring, casting, and related occupations
505 Pickling, cleaning, degreasing, and related occupations
504 Heat-treating occupations
505 Metal spraying, coating, and related occupations
509 Occupations in processing of metal, n e c

51 **Ore refining and foundry occupations**
510 Mixing and related occupations
511 Separating, filtering, and related occupations
512 Melting occupations
513 Roasting occupations
514 Pouring and casting occupations
515 Crushing and grinding occupations
516 Molders, coremakers, and related occupations
519 Ore refining and foundry occupations, n e c

52 **Occupations in processing of food, tobacco, and related products**
520 Mixing, compounding, blending, kneading, shaping, and related occupations
521 Separating, crushing, milling, chopping, grinding, and related occupations
522 Culturing, melting, fermenting, distilling, saturating, pickling, aging, and related occupations
523 Heating, rendering, melting, drying, cooling, freezing, and related occupations
524 Coating, icing, decorating, and related occupations
525 Slaughtering, breaking, curing, and related occupations
526 Cooking and baking occupations, n e c
529 Occupations in processing of food, tobacco, and related products, n e c

53 **Occupations in processing of paper and related materials**
530 Grinding, beating, and mixing occupations
532 Cooking and drying occupations
533 Cooling, bleaching, screening, washing, and related occupations
534 Calendering, sizing, coating, and related occupations
535 Forming occupations, n e c
539 Occupations in processing of paper and related materials, n e c

54 **Occupations in processing of petroleum, coal, natural and manufactured gas, and related products**
540 Mixing and blending occupations
541 Filtering, straining, and separating occupations
542 Distilling, subliming, and carbonizing occupations
543 Drying, heating, and melting occupations
544 Grinding and crushing occupations
546 Reacting occupations, n e c
549 Occupations in processing of petroleum, coal, natural and manufactured gas, and related products, n e c

55 **Occupations in processing of chemicals, plastics, synthetics, rubber, paint, and related products**
550 Mixing and blending occupations
551 Filtering, straining, and separating occupations
552 Distilling occupations
553 Heating, baking, drying, seasoning, melting, and heat-treating occupations
554 Coating, calendering, laminating, and finishing occupations
555 Grinding and crushing occupations
556 Casting and molding occupations, n e c
557 Extruding occupations
558 Reacting occupations, n e c
559 Occupations in processing of chemicals, plastics, synthetics, rubber, paint, and related products, n e c

56 **Occupations in processing of wood and wood products**
560 Mixing and related occupations
561 Wood preserving and related occupations
562 Saturating, coating, and related occupations, n e c
563 Drying, seasoning, and related occupations
564 Grinding and chopping occupations, n e c
569 Occupations in processing of wood and wood products, n e c

57 **Occupations in processing of stone, clay, glass, and related products**
570 Crushing, grinding, and mixing occupations
571 Separating occupations
572 Melting occupations
573 Baking, drying, and heat-treating occupations
574 Impregnating, coating, and glazing occupations
575 Forming occupations
579 Occupations in processing of stone, clay, glass, and related products, n e c

58 **Occupations in processing of leather, textiles, and related products**
580 Shaping, blocking, stretching, and tentering occupations
581 Separating, filleting, and drying occupations
582 Washing, steaming, and saturating occupations
583 Ironing, pressing, glazing, staking, calendering, and embossing occupations
584 Mercerizing, coating, and laminating occupations
585 Singeing, cutting, shearing, shaving, and napping occupations
586 Felting and fulling occupations
587 Brushing and shrinking occupations
589 Occupations in processing of leather, textiles, and related products, n e c

59 **Processing occupations, n.e.c.**
590 Occupations in processing products from assorted materials
599 Miscellaneous processing occupations, n.e.c.

MACHINE TRADES OCCUPATIONS

60 **Metal machining occupations**
600 Machinists and related occupations
601 Toolmakers and related occupations
602 Gear machining occupations
603 Abrading occupations
604 Turning occupations
605 Milling, shaping, and planing occupations
606 Boring occupations
607 Sawing occupations
609 Metal machining occupations, n e c

61 **Metalworking occupations, n.e.c.**
610 Hammer forging occupations
611 Press forging occupations
612 Forging occupations, n e c
613 Sheet and bar rolling occupations
614 Extruding and drawing occupations
615 Punching and shearing occupations
616 Fabricating machine occupations
617 Forming occupations, n e c
619 Miscellaneous metalworking occupations, n e c

62/63 **Mechanics and machinery repairers**
620 Motorized vehicle and engineering equipment mechanics and repairers
621 Aircraft mechanics and repairers
622 Rail equipment mechanics and repairers
623 Marine mechanics and repairers
624 Farm mechanics and repairers
625 Engine, power transmission, and related mechanics
626 Metalworking machinery mechanics
627 Printing and publishing mechanics and repairers
628 Textile machinery and equipment mechanics and repairers
629 Special industry machinery mechanics
630 General industry mechanics and repairers
631 Powerplant mechanics and repairers
632 Ordnance and accessories mechanics and repairers
633 Business and commercial machine repairers
637 Utilities service mechanics and repairers
638 Miscellaneous occupations in machine installation and repair
639 Mechanics and machinery repairers, n e c

64 **Paperworking occupations**
640 Paper cutting, winding, and related occupations
641 Folding, creasing, scoring, and gluing occupations
649 Paperworking occupations, n e c

65 **Printing occupations**
650 Typesetters and composers
651 Printing press occupations
652 Printing machine occupations
653 Bookbinding-machine operators and related occupations
654 Typecasters and related occupations
659 Printing occupations, n e c

66 **Wood machining occupations**
660 Cabinetmakers
661 Patternmakers
662 Sanding occupations
663 Shearing and shaving occupations
664 Turning occupations
665 Milling and planing occupations
666 Boring occupations
667 Sawing occupations
669 Wood machining occupations, n e c

67 **Occupations in machining stone, clay, glass, and related materials**
670 Stonecutters and related occupations
673 Abrading occupations
674 Turning occupations
675 Planing and shaping occupations, n e c
676 Boring and punching occupations
677 Chipping, cutting, sawing, and related occupations
679 Occupations in machining stone, clay, glass, and related materials, n e c

68 **Textile occupations**
680 Carding, combing, drawing, and related occupations
681 Twisting, beaming, warping, and related occupations
682 Spinning occupations
683 Weavers and related occupations
684 Hosiery knitting occupations
685 Knitting occupations, except hosiery
686 Punching, cutting, forming, and related occupations
687 Tufting occupations
689 Textile occupations, n e c

69 **Machine trades occupations, n.e.c.**
690 Plastics, synthetics, rubber, and leather working occupations
691 Occupations in fabrication of insulated wire and cable
692 Occupations in fabrication of products from assorted materials
693 Modelmakers, patternmakers, and related occupations
694 Occupations in fabrication of ordnance, ammunition, and related products, n e c
699 Miscellaneous machine trades occupations, n.e.c.

BENCHWORK OCCUPATIONS

70 **Occupations in fabrication, assembly, and repair of metal products, n.e.c.**
700 Occupations in fabrication, assembly, and repair of jewelry, silverware, and related products
701 Occupations in fabrication, assembly, and repair of tools, and related products
703 Occupations in assembly and repair of sheetmetal products, n e c
704 Engravers, etchers, and related occupations
705 Filing, grinding, buffing, cleaning, and polishing occupations, n e c
706 Metal unit assemblers and adjusters, n e c
709 Miscellaneous occupations in fabrication, assembly, and repair of metal products, n e c

71 **Occupations in fabrication and repair of scientific, medical, photographic, optical, horological, and related products**
710 Occupations in fabrication and repair of instruments for measuring, controlling, and indicating physical characteristics
711 Occupations in fabrication and repair of optical instruments
712 Occupations in fabrication and repair of surgical, medical, and dental instruments and supplies
713 Occupations in fabrication and repair of ophthalmic goods
714 Occupations in fabrication and repair of photographic equipment and supplies
715 Occupations in fabrication and repair of watches, clocks, and parts
716 Occupations in fabrication and repair of engineering and scientific instruments and equipment, n e c

719 Occupations in fabrication and repair of scientific and medical apparatus, photographic and optical goods, horological, and related products, n.e.c.

72 **Occupations in assembly and repair of electrical equipment**
720 Occupations in assembly and repair of radio and television receiving sets and phonographs
721 Occupations in assembly and repair of motors, generators, and related products
722 Occupations in assembly and repair of communications equipment
723 Occupations in assembly and repair of electrical appliances and fixtures
724 Occupations in winding and assembling coils, magnets, armatures, and related products
725 Occupations in assembly of light bulbs and electronic tubes
726 Occupations in assembly and repair of electronic components and accessories, n.e.c.
727 Occupations in assembly of storage batteries
728 Occupations in fabrication of electrical wire and cable
729 Occupations in assembly and repair of electrical equipment, n.e.c.

73 **Occupations in fabrication and repair of products made from assorted materials**
730 Occupations in fabrication and repair of musical instruments and parts
731 Occupations in fabrication and repair of games and toys
732 Occupations in fabrication and repair of sporting goods
733 Occupations in fabrication and repair of pens, pencils, and office and artists' materials, n.e.c.
734 Occupations in fabrication and repair of notions
735 Occupations in fabrication and repair of jewelry, n.e.c.
736 Occupations in fabrication and repair of ordnance and accessories
737 Occupations in fabrication of ammunition, fireworks, explosives, and related products
739 Occupations in fabrication and repair of products made from assorted materials, n.e.c.

74 **Painting, decorating, and related occupations**
740 Painters, brush
741 Painters, spray
742 Staining, waxing, and related occupations
749 Painting, decorating, and related occupations, n.e.c.

75 **Occupations in fabrication and repair of plastics, synthetics, rubber, and related products**
750 Occupations in fabrication and repair of tires, tubes, tire treads, and related products
751 Laying out and cutting occupations, n.e.c.
752 Fitting, shaping, cementing, finishing, and related occupations, n.e.c.
753 Occupations in fabrication and repair of rubber and plastic footwear
754 Occupations in fabrication and repair of miscellaneous plastics products
759 Occupations in fabrication and repair of plastics, synthetics, rubber, and related products, n.e.c.

76 **Occupations in fabrication and repair of wood products**
760 Bench carpenters and related occupations
761 Occupations in laying out, cutting, carving, shaping, and sanding wood products, n.e.c.
762 Occupations in assembling wood products, n.e.c.
763 Occupations in fabrication and repair of furniture, n.e.c.
764 Cooperage occupations
769 Occupations in fabrication and repair of wood products, n.e.c.

77 **Occupations in fabricating and repair of sand, stone, clay, and glass products**
770 Occupations in fabrication and repair of jewelry, ornaments, and related products
771 Stone cutters and carvers
772 Glass blowing, pressing, shaping, and related occupations, n.e.c.
773 Occupations in coloring and decorating brick, tile, and related products
77a Occupations in fabrication and repair of pottery and porcelain ware
775 Grinding, filing, polishing, frosting, etching, cleaning, and related occupations, n.e.c.
776 Occupations in fabrication and repair of asbestos and polishing products, abrasives, and related materials
777 Modelmakers, patternmakers, moldmakers, and related occupations
779 Occupations in fabrication and repair of sand, stone, clay, and glass products, n.e.c.

78 **Occupations in fabrication and repair of textile, leather, and related products**
780 Occupations in upholstering and in fabrication and repair of stuffed furniture, mattresses, and related products
781 Laying out, marking, cutting, and punching occupations, n.e.c.
782 Hand sewers, menders, embroiders, knitters, and related occupations, n.e.c.
783 Fur and leather working occupations
78a Occupations in fabrication and repair of hats, caps, gloves, and related products
785 Tailors and dressmakers
786 Sewing machine operators, garment
787 Sewing machine operators, nongarment
788 Occupations in fabrication and repair of footwear
789 Occupations in fabrication and repair of textile, leather, and related products, n.e.c.

79 **Bench work occupations, n.e.c.**
790 Occupations in preparation of food, tobacco, and related products, n.e.c.
794 Occupations in fabrication of paper products, n.e.c.
795 Gluing occupations, n.e.c.

STRUCTURAL WORK OCCUPATIONS

80 **Occupations in metal fabricating, n.e.c.**
800 Riveters, n.e.c.
801 Fitting, bolting, screwing, and related occupations
804 Tinsmiths, coppersmiths, and sheet metal workers
805 Boilermakers
806 Transportation equipment assemblers and related occupations
807 Body workers, transportation equipment
809 Miscellaneous occupations in metal fabricating, n.e.c.

81 **Welders, cutters, and related occupations**
810 Arc welders and cutters
811 Gas welders
812 Resistance welders
813 Brazing, braze-welding, and soldering occupations
814 Solid state welders
815 Electron-beam, electroslag; thermal; induction; and laser-beam welders
816 Thermal cutters and arc cutters
819 Welders, cutters, and related occupations, n.e.c.

82 **Electrical assembling, installing, and repairing occupations**
820 Occupations in assembly, installation, and repair of generators, motors, accessories, and related powerplant equipment
821 Occupations in assembly, installation, and repair of transmission and distribution lines and circuits
822 Occupations in assembly, installation, and repair of wire communication, detection and signaling equipment
823 Occupations in assembly, installation, and repair of electronic communication, detection, and signaling equipment
824 Occupations in assembly, installation, and repair of lighting equipment and building wiring, n.e.c.
825 Occupations in assembly, installation, and repair of transportation and materials handling equipment, n.e.c.
826 Occupations in assembly, installation, and repair of industrial apparatus, n.e.c.
827 Occupations in assembly, installation, and repair of large household appliances and similar commercial and industrial equipment
828 Occupations in fabrication, installation, and repair of electrical and electronics products, n.e.c.

829 Occupations in installation and repair of electrical products, n e c.

84 **Painting, plastering, waterproofing, cementing, and related occupations**
840 Construction and maintenance painters and related occupations
841 Paperhangers
842 Plasterers and related occupations
843 Waterproofing and related occupations
844 Cement and concrete finishing and related occupations
845 Transportation equipment painters and related occupations
849 Painting, plastering, waterproofing, cementing, and related occupations, n e c.

85 **Excavating, grading, paving, and related occupations**
850 Excavating, grading, and related occupations
851 Drainage and related occupations
853 Paving occupations, asphalt and concrete
859 Excavating, grading, paving, and related occupations, n e c.

86 **Construction occupations, n.e.c.**
860 Carpenters and related occupations
861 Brick and stone masons and tile setters
862 Plumbers, gas fitters, steam fitters, and related occupations
863 Asbestos and insulation workers
864 Floor laying and finishing occupations
865 Glaziers and related occupations
866 Roofers and related occupations
869 Miscellaneous construction occupations, n e.c.

89 **Structural work occupations, n.e.c.**
891 Occupations in structural maintenance, n e c.
899 Miscellaneous structural work occupations, n e c.

MISCELLANEOUS OCCUPATIONS

90 **Motor freight occupations**
900 Concrete-mixing-truck drivers
902 Dump-truck drivers
903 Truck drivers, inflammables
904 Trailer-truck drivers
905 Truck drivers, heavy
906 Truck drivers, light
909 Motor freight occupations, n e c.

91 **Transportation occupations, n.e.c.**
910 Railroad transportation occupations
911 Water transportation occupations
912 Air transportation occupations
913 Passenger transportation occupations, n e c.
914 Pumping and pipeline transportation occupations
915 Attendants and servicers, parking lots and automotive service facilities
919 Miscellaneous transportation occupations, n e.c.

92 **Packaging and materials handling occupations**
920 Packaging occupations
921 Hoisting and conveying occupations
922 Occupations in moving and storing materials and products, n e.c.
929 Packaging and materials handling occupations, n e c.

93 **Occupations in extraction of minerals**
930 Earth boring, drilling, cutting, and related occupations
931 Blasting occupations
932 Loading and conveying operations
933 Crushing occupations
934 Screening and related occupations
939 Occupations in extraction of minerals, n e.c.

95 **Occupations in production and distribution of utilities**
950 Stationary engineers
951 Fitters and related occupations
952 Occupations in generation, transmission, and distribution of electric light and power
953 Occupations in production and distribution of gas
954 Occupations in filtration, purification, and distribution of water
955 Occupations in disposal of refuse and sewage
956 Occupations in distribution of steam
959 Occupations in production and distribution of utilities, n e c

96 **Amusement, recreation, motion picture, radio and television occupations, n.e.c.**
960 Motion picture projectionists
961 Models, stand-ins, and extras, n e c
962 Occupations in motion picture, television, and theatrical productions, n e c.
969 Miscellaneous amusement and recreation occupations, n e.c.

97 **Occupations in graphic art work**
970 Art work occupations, brush, spray, or pen
971 Photoengraving occupations
972 Lithographers and related occupations
973 Hand compositors, typesetters, and related occupations
974 Electrotypers, stereotypers, and related occupations
976 Darkroom occupations, n e.c.
977 Bookbinders and related occupations
979 Occupations in graphic art work, n e c.

APPENDIX

Explanation of Data, People and Things

Much of the information in this publication is based on the premise that every job requires a worker to function in some degree to Data, People and Things. These relationships are identified and explained below. They appear in the form of three listings arranged in each instance from the relatively simple to the complex in such a manner that each successive relationship includes those that are simpler and excludes the more complex.[1] The identifications attached to these relationships are referred to as worker functions, and provide standard terminology for use in summarizing exactly what a worker does on the job.

A job's relationship to Data, People and Things can be expressed in terms of the lowest numbered function in each sequence. These functions taken together indicate the total level of complexity at which the worker performs. The fourth, fifth and sixth digits of the occupational code numbers reflect relationships to Data, People and Things, respectively.[2] These digits express a job's relationship to Data, People and Things by identifying the highest appropriate function in each listing as reflected by the following table:

DATA (4th digit)	PEOPLE (5th digit)	THINGS (6th digit)
0 Synthesizing	0 Mentoring	0 Setting-Up
1 Coordinating	1 Negotiating	1 Precision Working
2 Analyzing	2 Instructing	2 Operating-Controlling
3 Compiling	3 Supervising	3 Driving-Operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking-Signaling	6 Feeding - Offbearing
	7 Serving	7 Handling
	8 Taking Instructions - Helping	

Definitions of Worker Functions

DATA: Information, knowledge, and conceptions, related to data, people, or things, obtained by observation, investigation, interpretation, visualization, and mental creation. Data are intangible and include numbers, words, symbols, ideas, concepts, and oral verbalization.

0 Synthesizing: Integrating analyses of data to discover facts and/or develop knowledge concepts or interpretations.

1 Coordinating: Determining time, place, and sequence of operations or action to be taken on the basis of analysis of data; executing determination and/or reporting on events.

2 Analyzing: Examining and evaluating data. Presenting alternative actions in relation to the evaluation is frequently involved.

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[1] As each of the relationships to People represents a wide range of complexity, resulting in considerable overlap among occupations, their arrangement is somewhat arbitrary and can be considered a hierarchy only in the most general sense.

[2] Only those relationships which are occupationally significant in terms of the requirements of the job are reflected in the code numbers. The incidental relationships which every worker has to Data, People, and Things, but which do not seriously affect successful performance of the essential duties of the job, are not reflected.

3. Compiling: Gathering, collating, or classifying information about data, people, or things. Reporting and/or carrying out a prescribed action in relation to the information is frequently involved.

4 Computing: Performing arithmetic operations and reporting on and/or carrying out a prescribed action in relation to them. Does not include counting.

5 Copying: Transcribing, entering, or posting data.

6 Comparing: Judging the readily observable functional, structural, or compositional characteristics (whether similar to or divergent from obvious standards) of data, people, or things.

PEOPLE: Human beings; also animals dealt with on an individual basis as if they were human.

0 Mentoring: Dealing with individuals in terms of their total personality in order to advise, counsel, and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual, and/or other professional principles.

1 Negotiating: Exchanging ideas, information, and opinions with others to formulate policies and programs and/or arrive jointly at decisions, conclusions, or solutions.

2 Instructing: Teaching subject matter to others, or training others (including animals) through explanation, demonstration, and supervised practice; or making recommendations on the basis of technical disciplines.

3. Supervising: Determining or interpreting work procedures for a group of workers, assigning specific duties to them, maintaining harmonious relations among them, and promoting efficiency. A variety of responsibilities is involved in this function.

4 Diverting: Amusing others. (Usually accomplished through the medium of stage, screen, television, or radio.)

5 Persuading: Influencing others in favor of a product, service, or point of view.

6 Speaking-Signaling: Talking with and/or signaling people to convey or exchange information. Includes giving assignments and/or directions to helpers or assistants.

7 Serving: Attending to the needs or requests of people or animals or the expressed or implicit wishes of people. Immediate response is involved.

8 Taking Instructions-Helping: Helping applies to "non-learning" helpers. No variety of responsibility is involved in this function.

THINGS: Inanimate objects as distinguished from human beings, substances or materials; machines, tools, equipment and products. A thing is tangible and has shape, form, and other physical characteristics.

0 Setting up: Adjusting machines or equipment by replacing or altering tools, jigs, fixtures, and attachments to prepare them to perform their functions.

change their performance, or restore their proper functioning if they break down. Workers who set up one or a number of machines for other workers or who set up and personally operate a variety of machines are included here.

1 Precision Working: Using body members and/or tools or work aids to work, move, guide, or place objects or materials in situations where ultimate responsibility for the attainment of standards occurs and selection of appropriate tools, objects, or materials, and the adjustment of the tool to the task require exercise of considerable judgment.

2 Operating-Controlling: Starting, stopping, controlling, and adjusting the progress of machines or equipment. Operating machines involves setting up and adjusting the machine or material(s) as the work progresses. Controlling involves observing gages, dials, etc., and turning valves and other devices to regulate factors such as temperature, pressure, flow of liquids, speed of pumps, and reactions of materials.

3 Driving-Operating: Starting, stopping, and controlling the actions of machines or equipment for which a course must be steered, or which must be guided, in order to fabricate, process, and/or move things or people. Involves such activities as observing gages and dials; estimating distances and determining speed and direction of other objects; turning cranks and wheels; pushing or pulling gear lifts or levers. Includes such machines as cranes, conveyor systems, tractors, furnace charging machines, paving machines and hoisting machines. Excludes manually powered machines, such as handtrucks and dollies, and power assisted machines, such as electric wheelbarrows and handtrucks.

4 Manipulating: Using body members, tools, or special devices to work, move, guide, or place objects or materials. Involves some latitude for judgment with regard to precision attained and selecting appropriate tool, object, or material, although this is readily manifest.

5 Tending: Starting, stopping, and observing the functioning of machines and equipment. Involves adjusting materials or controls of the machine, such as changing guides, adjusting timers and temperature gages, turning valves to allow flow of materials, and flipping switches in response to lights. Little judgment is involved in making these adjustments.

6 Feeding-Offbearing: Inserting, throwing, dumping, or placing materials in or removing them from machines or equipment which are automatic or tended or operated by other workers.

7 Handling: Using body members, handtools, and/or special devices to work, move or carry objects or materials. Involves little or no latitude for judgment with regard to attainment of standards or in selecting appropriate tool, object, or material.