OLDER DISABLED WORKERS:

HOW ACCURATE ARE THEIR PERCEPTIONS OF THEIR OWN ABILITY AND THE DEMANDS OF WORK?

by

Teresa Akins

B.A., Simon Fraser University, 1985

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS (EDUCATION)

in the Faculty

of

Education

SIMON FRASER UNIVERSITY

January, 1989

APPROVAL

Name: Teresa Akins

Degree: Master of Arts (Education)

Title of Project: Older Disabled Workers: How Accurate Are Their Perceptions of Their Own Ability And the Demands of Work?

Examining Committee:

Chair: Michael Manley-Casimir

Ronald W. Marx
Senior Supervisor

David Lingley
Visiting Professor

Gordon Wallace
President and Senior Consultant
The Vocational Consulting Group Inc.
Vancouver, B. C.

Dr. Marshall S. Wilensky
Adjunct Professor
Faculty of Education
Simon Fraser University
External Examiner

Date Approved January 9, 1989

PARTIAL COPYRIGHT LICENSE

I hereby grant to Simon Fraser University the right to lend my thesis, project or extended essay (the title of which is shown below) to users of the Simon Fraser University Library, and to make partial or single copies only for such users or in response to a request from the library of any other university, or other educational institution, on its own behalf or for one of its users. I further agree that permission for multiple copying of this work for scholarly purposes may be granted by me or the Dean of Graduate Studies. It is understood that copying or publication of this work for financial gain shall not be allowed without my written permission.

Title of Thesis/Project/Extended Essay

OLDER DISABLED WORKERS: HOW ACCURATE ARE THEIR PERCEPTIONS OF THEIR OWN ABILITY AND THE DEMANDS OF WORK?

Author: _____
(signature)

Teresa Akins
(name)

Dec 9/89
(date)

Abstract

Counselling the older worker is relatively new in the area of vocational rehabilitation. Traditional vocational rehabilitation clients have been adolescents and young adults. Counselling strategies which were once appropriate for the traditional clientele have come into question for clients who are over 40 years of age. Although little empirical research has been conducted with older disabled workers, Sheppard's study on the decision making processes of this group indicated that there is a tendency among older disabled workers to use self appraisal in order to make decisions about occupational choice.

The present study seeks to add to the literature on older disabled workers by examining whether or not these workers accurately appraise their abilities and the demands of the world of work. Such research has implications for counselling approaches used by vocational rehabilitation counsellors.

The participants were 20 older, disabled, male workers who had been referred for vocational assessment. Their justifications for liking or disliking 111 jobs were categorized as relating to their self perceptions or to the world of work. Each category contains specific sub-categories.

Results indicated that overall, this group of men gave more justifications for liking or disliking a job based on information regarding the world of work, rather than their personal ability to do a particular job. In addition, their perceptions about the world of work were more accurate than were their perceptions about their own abilities. In the area of the world of work, the group appeared to be most accurate in their perceptions of the

environmental conditions and overall personality of the job. These sub-categories had the highest percentage of justifications which were congruent with objective criteria than did any of the other sub-categories. There were surprisingly very few justifications given in the self perception sub-categories of strength and physical ability. The accuracy of these justifications was also surprisingly low. Having had experience in a task related to the job appeared to be of some importance in terms of justifying whether a job was liked or disliked. The data suggest that for these men, liking a job is strongly linked with having had experience in it.0

This study suggests possible directions for more in-depth study of the specific group of older disabled workers. A better understanding of this group's perceptions may assist the vocational rehabilitation counsellor in utilizing counselling approaches which may be better suited for the older disabled vocational rehabilitation client.

Acknowledgements

I would like to thank Ron Marx, David Lingley and Gordon Wallace for their guidance and support. You were a joy to work with!

My husband Kevin deserves an award for patience and tolerance during my thesis undertaking. Thank-you Kevin for your support!

Many thanks to my family and friends who cheered me on and frequently offered their votes of confidence. What would I have done without you all!

Table of Contents

Chapter III

Chapter IV

List of Tables

List of Figures

Chapter I

Statement of the Problem and Review of Related Literature

This chapter discusses counselling issues pertinent to the area of vocational rehabilitation with older disabled workers by first noting the emergence of the field. Differences between younger and older workers are then discussed in terms of world view formation. Following this, a discussion of a commonly used tool, i.e. interest inventories, particularly the Career Assessment Inventory, is discussed in terms of its frequency of use in vocational rehabilitation counselling, and problems encountered with its use. An adjunct (i.e. The Vocational Card Sort) to the inventory is then described, prior to mention of the concept of self appraisal. The chapter concludes with the general question, Are older disabled workers accurate appraisers of their abilities and the world of work? Then, a list of five specific questions addressed in the present study is presented.

Counselling The Vocational Rehabilitation Client

Counselling the older worker is a relatively new activity in the area of vocational rehabilitation (Engram, 1981). Rehabilitation counsellors have traditionally worked with clients who were young and employable (Benedict & Ganikos, 1981; Blake, 1981; Engram, 1981). Familiarity with the characteristics and vocational counselling needs of young people has resulted in a particular set of counselling strategies which begin with exploration of interests and aptitudes, and conclude with the narrowing down of these interests to one or two occupational areas suited to the client.

Changes in the rehabilitation legislation in the United States in 1978 making provisions for independent living rehabilitation, have stimulated research on older persons and the elderly in the vocational rehabilitation literature (Engram, 1981; Myers, 1983). Unfortunately, there have not been changes in counselling strategies corresponding to the change in the client group. Myers (1983) indicates that vocational rehabilitation counsellors are neither experienced nor trained to work with older people, and are therefore lacking in competence when it comes to counselling older workers. The term, "older" refers to workers over the age of forty years. The age of forty appears to be a commonly accepted boundary in the literature for defining "older workers" (Dunn, 1981, Giroux, 1983). The general lack of knowledge about older people in the rehabilitation field may be an explanation for the lack of counselling strategies generated for the specific population of older people.

Vocational rehabilitation clients are individuals who have been prevented from returning to their previous job due to a disability, and seek assistance in generating job alternatives which would result in job placement. What seems to have occurred is that the demographics of the vocational rehabilitation client have changed over the years (i.e. is generally older), but the methods used in the counselling process have not changed (Dunn, 1981; Engram, 1981). The majority of disabled individuals returning to work (63%) are 45 years or older, and the people aged 45-54 years old will increase by 60% between 1985 and the year 2020 (Hester, Decelles, & Hood, 1986). Blake (1981) notes that two-thirds of all individuals with work disabilities are presently over 40 years old. Dunn (1981) notes that vocational counselling

is the single most needed service by older disabled workers and requires the use of different strategies than those used with younger people.

Although the client population has shifted in recent times, the counselling strategies employed by rehabilitation counsellors have not. The boundaries of vocational rehabilitation are expanding to encompass not only middle-aged people, but also the elderly (Myers, 1983). The literature refers to a necessary gradual shift in counselling goals from vocational rehabilitation to rehabilitation, with independent living being the final goal (Bozarth, 1981; Engram,1981; Myers, 1983; Salmon, 1981, Williams, Jr., 1978). It has been suggested that as the population one works with gradually moves through the aging process, so must the counselling goals gradually transform from a concentrated work orientation to part-time work to leisure time management, to independent living (Bozarth, 1981; Myers, 1983). The literature on the formation of world view illustrates the gradual shift in self concept which may occur over time. This is briefly presented below.

World view. The expectations one has of oneself and one's environment have been termed as a "world view" or a "conceptual system" in the literature on victimization. This conceptual system is said to develop over time, and therefore is a function of aging (Booth & Dumas, 1983; Janoff-Bulman & Frieze, 1983.). Life experiences shape this world view adding a positive or negative dimension depending on the nature of the experience. For example, experiencing numerous losses in one's life may produce feelings of insecurity and vulnerability, whereas the lack of loss in one's life may result in feelings of invulnerability.

Young people just out of high school have likely had relatively little life experience and therefore have likely had little chance to organize for themselves a complete view of the world and their role in it. These types of clients may benefit from counselling focussed on clarifying their world views. Vocational counsellors can direct their energies toward encouraging exploration of interests and abilities in order to identify them, and to narrow them down to a particular vocational stream.

Older workers on the other hand, have likely had an opportunity to interact with the world and have likely had an opportunity to form a view of themselves and their role in the world or work. A counselling approach which begins with general exploration of interests aimed at clarification of self concept as is used with younger people, may not prove to be informative with this group of clients. Older persons, in all likelihood, have already formed their self concepts prior to coming for counselling. It may be argued that following an injury, the client's world view is shattered, and the role of counsellor becomes one of restoring the world view incorporating new information about the worker's present functioning. The task of restoration of world view may well be a different one from the task of formation of world view, as may be the case in counselling younger people. The role of the counsellor with older clients who have become disabled and can no longer do their job may be one of exploring past experiences and world view, identifying strengths and transferable skills, and examining life goals within the context of an already formed world view and self concept. Some researchers have indicated that skilled vocational counselling for the older worker involves utilizing the counselling relationship via interviews and

working on attitudinal changes (Bozarth, 1981; Dunn, 1981; Myers, 1983; Odell, 1955; Sobel, 1966), rather than focus on the exploration of interest as is done with a younger group.

To summarize, the view one holds of oneself, and one's role in the world at large, appears to be a function of one getting older and living through life's experiences. It appears that the role of counsellor may need to change depending on the age of the individual in order to accommodate specific client needs.

Interest inventories. Despite the above noted evidence in the literature focusing on attitudinal changes utilizing interviews, one of the strategies commonly used and promoted as a first step in counselling is the use of interest inventories. Basically, these are questionnaires which require the individual to respond to a list of numerous subjects, activities, and job titles with either a "like", "dislike", or "indifferent" response. The responses are then scored, and general occupational areas and specific jobs are identified for the person, based on the interest responses. The manner in which the inventory is scored, as well as responded to, varies from inventory to inventory but the general principle is the same (i.e. individuals rate their degree of interest in an activity or subject area).

It is a widely accepted clinical practice to administer an interest inventory to older disabled workers at the beginning of the counselling process, just as it is common place to administer it to a younger group of people. In fact, various researchers (Johansson, 1982; Phillips, 1978; Roessler & Bolton, 1985) have recommended that interest inventories be used in the initial phase of the rehabilitation process. The Career Assessment Inventory (CAI) is an

interest inventory which is frequently given to injured blue collar workers when they come for vocational rehabilitation counselling as a means of generating interest areas for potential job retraining. It is used with this particular group because it contains jobs which require less than or equal to four years of college or university, and are considered to be "nonprofessional" (Johansson,1982) .

A number of writers (Gellman & Soloff, 1976; Roessler & Bolton, 1985; Williams, 1981) have suggested that interest inventories are useful tools in assisting individuals to develop pictures of themselves and their roles in the world of work. The CAI manual suggests that it is appropriate to administer this particular inventory to high-school students toward the end of the eleventh grade and as early as tenth grade as part of the career exploration process (Johansson, 1982). Despite cautions by the author of the CAI against seeing it as a "panacea in all settings" it is touted as being a "source of valid and reliable information in the assessment process" (Johansson, 1982. pp 5.).

Expressed interests vs. measured interests. There is evidence in the literature to indicate that expressed interests (those resulting from interviews) are just as valid as measured interests (those resulting from scores on standardized tests) in generating possible career choices, and that having experience in the task related to the jobs included on the inventory may actually bias the inventory results (Slaney & Slaney, 1981). It is argued that high experience in realistic jobs will correlate with high interest in those occupational areas (Slaney & Slaney, 1981).

This finding appears to be relevant for the older disabled group of workers in Sheppard's (1987) study. In some cases the men in this study

spent lifetimes working in the same career (i.e. operating heavy equipment). The majority of their responses fell into the realistic occupational category on the CAI. Sheppard's study indicated that this specific group had a high number of "dislike" and "indifferent" responses (i.e. when asked if they liked an occupation or not, or were indifferent, a large number of responses were "dislike", and/or "indifferent"), when responding to the Career Assessment Inventory. This high number of dislike responses resulted in undifferentiated profiles (depressed) for slightly less than half of the subjects. An undifferentiated profile is defined as being one for which the "like" responses are less than 20 % of the total responses (Campbell, 1977).

Slaney and Slaney (1981) indicate that having experience in particular tasks can actually bias inventory results in favour of the experience. This may be one explanation for the occurrence of undifferentiated profiles. Workers may only like jobs with which they have had experience and respond negatively to all others. If their disability prevents them from functioning in this experienced area, an inventory highlighting their experience obviously contributes nothing to the counselling process if the goal is to generate career choices. An undifferentiated profile may actually hinder the counselling process. Examples of how this may occur are presented below.

Problems which arise. One of the problems that can result after administering an interest inventory is the aforementioned problem of obtaining an undifferentiated profile. With the "like" responses being so low, little if no new information is obtained about the client's interest areas pertaining to the world of work. An undifferentiated profile is problematic

for both client and counsellor, and there is little literature available as to how to interpret this type of profile (Pinkney,1985). According to Pinkney, the following problems can arise after obtaining an undifferentiated profile.

1. The counsellor's credibility and competence may be questioned by the client because little information is generated by the inventory results.
2. Frustration may occur for both the counsellor and the client when career counselling seems to be at the point of termination in the early stage of the process.
3. The client may come to the conclusion that counselling, and the counsellor, is of little benefit.

Given these potential problems which arise from obtaining an undifferentiated profile following the administration of an interest inventory, it appears that counsellors should consider more closely the appropriateness of the inventory to their vocational rehabilitation client, rather than routinely administer these inventories. Counsellors have suggested another tool, the vocational card sort, to use as an adjunct to interest inventories, rather than speak to the issue of limiting the use of interest inventories with particular client groups. This tool is discussed below.

The vocational card sort. Many counsellors have suggested that expressed interests have predictive ability which equals or exceeds that of inventoried interests (Bartling & Hood, 1981; Borgen & Seling, 1978; Dolliver & Will, 1977; O'Neil & Magoon, 1977; Slaney & Slaney, 1981; Touchton & Magoon, 1977). The vocational card sort is an example of a tool used to obtain expressed interests, and it has been suggested by some researchers

(Dolliver,1969; Pinkney, 1985; Slaney & Slaney, 1981; Williams, 1981) as a viable adjunct to interest inventories for the purpose of minimizing the drawbacks mentioned earlier in this chapter.

The vocational card sort is a strategy whereby job titles are printed onto cards and the client is required to sort the cards into "like", "dislike", or "indifferent" piles. The vocational card sort allows data to be obtained on the client's understanding about the world of work and potential occupational choices, and the accuracy of that understanding. The strategy is flexible and permits the sorting into fewer or more piles.

Clients are asked to discuss their reasons for placing cards into each pile. This strategy permits the counsellor to identify patterns of thinking in the clients' acceptance or refusal of the job, as well as identify any misinformation clients may have about the jobs. The vocational card sort procedure may also give the counsellor insight into personal problems clients may be having which may hinder the vocational decision making process.

Sheppard (1987) utilized the above strategy in order to gain a better understanding of the decision making problems of a group of older and disabled male workers. He considered three areas which may interfere with this group's vocational decision making process. The areas examined were: employment readiness, self appraisal, and decision making readiness. Employment readiness problems focus on the person's desire to obtain work and the influence of external pressures on decision making. Self appraisal problems concern the individual's knowledge and perceptions of his or her own abilities, needs and decision making history. Decision making readiness

problems concern the individual's readiness to make vocational decisions based upon his or her occupational knowledge and decision making skills.

Sheppard found that the men in his study based their decisions about liking or disliking a job on the basis of self-appraisal, i.e. their abilities and how they saw themselves suiting the job. The question which emerges from this work is, are these self appraisals accurate? He also found that a high proportion of the inventory profiles were undifferentiated (45%).

The term "accurate" used above refers to a comparison between two measures for congruency. In the present study the comparison is between the worker's response, which is viewed as subjective, and objective measures such as the Canadian Classifications and Dictionary of Occupations (CCDO) (Occupational and Career Information Branch, Employment and Immigration Canada, 1971, 1977, 1978, 1980, 1986, 1987) and a medical report. The term "accurate" is used throughout this thesis in order to promote simplicity in sentence structure. There is no intention of inferring that the objective measures used in this study are absolute truths as may be implied by the absolute nature of the term. A note regarding self appraisal is presented below.

Self appraisal. Are the appraisals made by older disabled workers of their abilities and the world or work accurate? While there is no evidence in the literature about this particular group of workers, there is evidence (Booth & Dumas, 1983; Dunn, 1981; Giroux, 1983; Parnes & King, 1977; Rubin & Roessler, 1978; Williams, 1981) to support the notion that vocational counselling clients in general may not be accurate in their appraisals of their abilities and the world of work. Booth and Dumas have suggested that clients

underestimate their aptitudes. Williams (1981) has suggested that clients suffer from feelings of incompetence and doubt, and that these feelings in combination with poor knowledge of the world of work results in many negative responses on interest inventories. Giroux (1983) notes that adult clients hold misperceptions of the world of work due to inaccurate information about it. Parnes and King (1977) and Dunn (1981) indicate that middle-aged workers suffer from low self confidence and a lack of initiative to change to a new type of work. Rubin and Roessler (1978) note that disabled workers express pessimism about their own potential post injury. These emotional features are said to ultimately affect their vocational decision making. Dunn specifically notes that pessimism on the part of the client is directed toward the job duties contained in the CAI when it is administered.

In summary, a problem which arises from administration of interest inventories is obtaining an undifferentiated profile. Undifferentiated profiles are difficult to interpret and contribute little to the counselling process. In fact, it has been suggested that obtaining an undifferentiated profile can impede the counselling process (Pinkney, 1985). Sheppard's study (1987) suggests that undifferentiated profiles may occur more frequently with older workers than in the general population. Another potential problem in counselling older disabled people may be related to self appraisal. Evidence to suggest that clients in general are not accurate in their self appraisals was noted earlier in the chapter. The factors of age and disability might further compound this inaccuracy, resulting in the older disabled worker feeling discouraged, fearful, and reluctant to change

(Dunn,1981). One wonders if these feelings would not bias the results of interest inventories.

In conclusion, I have proposed that older disabled workers are a different population from the general vocational counselling population and consequently may require different counselling strategies. Interest inventories have been traditionally suggested as the first strategy to use in the vocational rehabilitation counselling process.

The expressed interests obtained through the use of vocational card sort and the counselling interview have been suggested as being as valid in generating possible career choices as measured interests. The older population, being more experienced in the world of work, may actually bias the measured interests obtained through use of the inventory by preferring jobs that they have done, thereby producing undifferentiated profiles.

The focus on the older person in vocational rehabilitation has opened numerous empirical questions. The most obvious one addresses population differences. It is reasonable to assume that the passage of time and life experience would influence one's behavior and thoughts. Given this assumption, it may follow that young, high school students may respond differently to various vocational counselling strategies such as interest inventories, than people over forty years old who have had an established work record.

The present study

The purpose of the present study is to contribute to the limited literature on older disabled workers in order to assist in future development of appropriate rehabilitation counselling strategies for this specific group of

people. This study builds on the work of L. Sheppard (1987), who examined the vocational decision making problems of older disabled workers. As a result of their disability, these workers had to leave their jobs before reaching retirement age.

Sheppard (1987) explored the decision making problems of older disabled workers. His findings, although inconclusive, suggest that older disabled workers use self appraisal as a basis to justify their vocational interest choices. The question which this finding raises immediately is, are these appraisals of self accurate? Sheppard (1987) also found a high percentage of undifferentiated profiles among his sample of older disabled workers. There is virtually no research which specifically addresses the vocational decision making problems of the older worker with a disability (Sheppard, 1987). Needless to say the research which examines more closely the perceptions of this group is also limited.

This study examines the accuracy of information about self and the world of work (i.e. self appraisals) held by older disabled workers by re-analyzing Sheppard's data. A detailed account of Sheppard's work is presented in the following chapter. The present study also attempts to address the issue of inventory validity with this particular group. If it is the case that older workers use self appraisal on which to base their vocational decisions, then the accuracy of their appraisals may affect the inventory results, producing the undifferentiated profiles described earlier in the chapter. The inventory examined is the Career Assessment Inventory.

The question of whether or not information about self and the world of work is accurate in this group is relevant and important to investigate because

it has clinical implications regarding the use of interest inventories, and the sequencing of general counselling strategies in the counselling process with this specific group.

If workers' perceptions about their abilities or about any aspect of a particular job are inaccurate, then the validity of the interest inventory results is in question as there is an implicit assumption that the responses reflect accurate pictures of interests. If these interests are biased by inaccurate information about the job or about the worker, then the jobs or occupations suggested by the inventory may not be appropriate.

Should the results of this study indicate that older disabled workers are inaccurate appraisers of themselves and the world of work, then one may question the current vocational rehabilitation counselling process which begins with testing. One may suggest that the process begin with giving the client accurate information about their abilities and the world of work, prior to administering the various interest inventories which rely to some extent on the client's subjective evaluation of both these areas. On the other hand, should the results indicate that the clients are accurate self appraisers, then one may question the usefulness of administering costly inventories which may not supply more information than what the client is able to provide within an initial interview.

The answer to the question of whether older disabled workers are accurate appraisers of their abilities and of the world of work may in time produce strategies to help clients arrive at adequate pictures of themselves and their roles in the world of work, thereby improving their vocational decision making.

The questions to be addressed in this study are as follows:

1. Are workers more accurate about some areas regarding the world of work than other areas? If so, which areas, e.g. physical demands, environmental conditions, job duties, temperaments, or the overall personality of the job?
2. Are workers more accurate about some aspects of themselves than others, e.g. physical strength versus educational level attained?
3. Are workers' appraisals of their physical ability congruent with medical reports?
4. Does having experience in the job task affect personal interest decisions, (i.e. are people more likely to dislike a job because of a lack of experience in the task of that job, conversely, are they more likely to prefer a job due to having experience in the task)?
5. How appropriate a tool is the the Career Assessment Inventory for an older disabled male group?

The variables, data sources and procedures applied to the questions noted above are described in Chapter two, and the results are presented in Chapter three. A discussion of the results is presented in Chapter four.

Chapter II

Method

This chapter begins with an overview of the methodology used in the present study. The purpose of this overview is to assist the reader to keep track of the methodology of the study amid the numerous definitions which are presented throughout the chapter at each stage of a rather complicated coding procedure. Following the overview the participants are described, as are the variables and the data sources used. A more in-depth description of the procedure utilizing a flow chart format follows.

There were two sources of subjective data used in the present study. They were: audiotapes of the participant's interviews, and CAI results for each participant. The audiotapes of the participants' interviews in Sheppard's study constitute the central portion of the data. These tapes contain the justifications which participants gave for liking or disliking job titles. The CAI was used to obtain job titles used, as well as to examine the participants' general interest themes, i.e. interest profiles.

The first thing that was done was to transcribe the audiotapes so that the justifications were easily accessible. Once this was done, it was necessary to determine the coding procedure for translating the participants' justifications in terms of the variables used in the present study. This measured: the world of work, self appraisal, experience in the task and objective ability to do the job. The variables are described more thoroughly later in the chapter. A strict coding procedure was developed utilizing a code book and a series of flow charts, in order to ensure reliability and replicability of the procedure.

In order to examine the accuracy of the participants' justifications for liking or disliking job titles, it was necessary to obtain sources of objective data. The sources used were: The CCDO, Computer Assisted Vocational Exploration System (CAVES), and a physician's report. These sources are described later in the chapter.

The subjective (justifications) and objective data sources were then brought together by utilizing several forms which were specifically prepared for the coding procedure. The forms used were: the master data sheet (Appendix 1.), the physical abilities template (Appendix 2.) , and the Participant's Score sheet (Appendix 3.). Each of these forms is described later in the chapter. The procedure for coding the participants' justifications is briefly presented below.

Each participant's justification for liking or disliking a job title was first coded as belonging to one of the numerous variables used in this study to measure aspects of the world of work and personal ability. These variables and their definitions were obtained mainly from the CCDO. The CAVES uses the CCDO data base and was frequently utilized in the present study because of it's ease of use. Since the CAVES is a compilation of the CCDO information (using the most up to date information guide) and the Holland Codes as defined by Canada Employment and Immigration Commission, the CAVES and CCDO are seen as being interchangeable.

Once the justification was identified as referring to one of the variables, the appropriate objective data source was compared to the participant's justification in order to see if there was a match. If the participant's justification matched the objective source, the justification was coded as

being accurate. If the justification did not match the objective data source, it was considered to be inaccurate. The number of accurate justifications were totalled, and the following results chapter presents, among other figures, these sums of accurate justifications.

The terms "accurate" and "congruent" are used interchangeably in this study. A distinction between the terms "response" and "justification" is made. The term "response" refers merely to the participant's preference of a job title i.e., like or dislike, whereas the term "justification" refers to the reason given for liking or disliking a job title.

An overview of the methodology for this study has been presented. The remaining portions of the chapter describe the participants; define the variables and the data sources; and conclude with an in-depth description of the coding procedure

Participants

Sheppard's sample consisted of 20 disabled individuals who were referred by a union-sponsored long term disability plan to Vocational Rehabilitation Consultants Inc. for vocational assessments. Refer to Appendix 4 for a description of Sheppard's sampling procedure.

All participants were male, which reflected the gender of the membership of the Operating Engineers Union, the group for which the disability plan was in operation. Given that the sample used in this study was male, the pronoun "he" is used in this chapter and in those which follow. The age range was 42-64 yrs., with the mean age being 54.15 yrs. Only one participant had completed high school. All others had completed grade eight

or less. This educational level was noted by Sheppard to be characteristic of the Operating Engineers Union membership.

Variables

There were several measures of variables which needed to be obtained in order to conduct this study. These variables have to do with three overall categories: (1) the world of work, (2) self perceptions, (3) additional sub-categories, i.e. experience in a task related to the job and objective ability to do the job. Since measures for the world of work and self perceptions already exist and are commonly used in the area of vocational rehabilitation, they were utilized in the present study. The definitions of these variables originate from the CCDO. Refer to the "objective data sources" section presented later in the chapter for an explanation of the CCDO. A brief explanation of each specific measure follows Table 1. The definitions of the specific measures of world of work, and self perceptions have been quoted or summarized from the CAVES operations manual (Vocational Consulting Group Inc., 1987) with permission from the author (Appendix 5.). A more detailed explanation of each of the specific variables is provided in Appendix 6 for the reader who is unfamiliar with these terms. The specific variables used in the present study and listed in Table 1 are described below.

Holland code. Vocational interests, as based on the work of John L. Holland, are referred to as Holland codes. Holland's theory of vocational choice is based on the assumption that vocational interests are one aspect of what is commonly called "personality", and that the description of an individual's vocational interests also describes the individual's personality (Hansen, 1984). He contends that each individual to some extent resembles

Table 1

Variables Used In The Study

VARIABLES
WORLD OF WORK
Holland codes (job personality)
Temperaments
Physical demands
Environmental conditions
Job duties
SELF PERCEPTIONS
Strength
Educational level (GED)
Physical ability
ADDITIONAL SUB-CATEGORIES
Experience in the task
Objective ability to do the job

one of six basic personality types. The more one resembles any given type, the more likely one is to manifest some of the behaviors and traits associated with that type. He also contends that it is possible to describe the characteristics of work environments with the same six personality types. It is assumed that people are happiest in work environments which match their personality type.

The types of occupational environments are described according to a combination of the main interests and activities that they represent. The six personalities are: Realistic, Investigative, Artistic, Social, Enterprising, and Conventional. In the present study, the participant's justification for liking or disliking particular job titles was first identified as pertaining to one of the six Holland codes noted above, then this code was compared to the CAVES data base to see if this Holland code was identified as being one of the three Holland codes denoting the job title's personality type.

Temperaments are defined as those personality qualities which remain fairly constant and reveal a person's characteristic response in terms of a preference, inclination, or disposition (CAVES Operations Manual, 1987). The CCDO examines the type of temperamental adjustment required of the worker in order to perform the job adequately. There are 12 temperament traits used to evaluate the work environment: (1) Variety and change, (2) Repetitive, short cycle, (3) Under specific instructions, (4) Direction, control, planning, (5) Dealing with people, (6) Isolation, (7) Influencing people, (8) Performing under stress, (9) Sensory or judgmental criteria, (10) Measurable or verifiable criteria, (11) Interpretation of ideas, facts, feeings, (12) Precise attainment of set limits, tolerances, or standards.

In the present study, the participants' justification was first identified as pertaining to one of the 12 temperaments noted above, then it was compared to the CCDO to see if this temperament was required in order to do the job.

Physical demands are defined as the physical capacities required of workers in order for them to perform the job. The physical requirements of a job are defined in terms of seven physical demand factors. These are as follows: (1) Strength, (2) Climbing and /or balancing, (3) Stooping, kneeling, crouching, and/or crawling, (4) Reaching, handling, fingering and/or feeling, (5) Talking, (6) Hearing, (7) Seeing. In the present study, the participant's justification was first identified as pertaining to one of the seven physical demands noted above, then it was compared to the CCDO to see if the physical demand was required in order to perform the job.

Environmental conditions are defined as those physical surroundings of the job which make specific demands upon a worker's physical capacities. The important environmental conditions under which the jobs are performed are expressed by seven factors. These are as follows: (1) Work location, (2) Extremes of cold plus temperature changes, (3) Extremes of heat plus temperature changes, (4) Wet and/or humid, (5) Noise and/or vibration, (6) Hazards, and (7) Atmospheric conditions.

In the present study, the participant's justification was first identified as referring to one of the seven environmental conditions noted above, then this condition was compared to the CCDO to see if the job was performed in the mentioned environmental condition.

Job duties. The variable name is self explanatory. A description of the job and activities performed in a particular job is provided in the CCDO. In the

present study, the participant's description of the job duties was compared to the CCDO job description in order to see if the participant was accurate in his perception of the job title.

Three variables measuring self perception were used in the present study:

Strength is one of the factors considered under the general heading of physical demands described earlier in the chapter. This variable was used when the participant made specific reference to his ability, i.e. strength, to do a particular job. The participant's perception of his strength was compared to the physician's assessment of the participant's strength for accuracy.

Educational level is referred to as general educational development (GED) in the CCDO. For simplicity, the term educational level is used in this study to describe this variable. Educational level is a measure of the training, both formal and on the job, required to do a particular job. This variable was used when the participant made specific reference to his own educational level and his ability to do a job. His perception was compared to the CCDO requirements of the job title for accuracy.

Physical ability. This study uses the term, "physical ability" to describe the physical abilities (other than strength) one is left with after an injury. This variable was coded when the participant made reference to his ability to perform either the physical demands, or in specific environmental conditions of the job. The participant's judgement of his ability was then compared to the physician's assessment for accuracy.

Two other measures which may have bearing on the decision making processes of older disabled workers, and may have an indirect bearing on

their perceptions are: experience in the task and objective ability to do the job. These variables are defined below.

Experience in the task is merely an overt statement made by the participant that he has or has not done the job in question. Employment in the job is not necessary. Performing the job on a volunteer or leisure basis was considered by the researcher to be sufficient to code this variable.

Objective ability to do the job was measured by comparing the physician's assessment of the participant's physical abilities to the physical demands and environmental condition of each job title.

Data Sources

Subjective. Audiotapes and the CAI. These sources of data have been sufficiently described in the overview of this chapter.

Objective. The CCDO contains a comprehensive listing of jobs available in Canada and of their demands. It is for this reason that it is a commonly used reference in vocational rehabilitation counselling. The job requirements in the CCDO are identified from several aspects other than educational requirements, and it was for this reason that the CCDO was used as a source for collecting objective measures of knowledge of the job and self perceptions in the present study. In addition to listing information about the variables used in the present study, the CCDO identifies aptitude requirements of the various jobs, as well as provides descriptions of the job duties for each of the job titles.

Computer Assisted Vocational Exploration Systems (CAVES) was designed by the Vocational Consulting Group Inc. in order to assist in exploring vocational rehabilitation opportunities for disabled workers. This

program uses the CCDO as a data base which contains information regarding temperaments, physical demands, environmental condition and educational level. The CCDO does not contain Holland code information however, the CAVES do. The Holland code information used by the CAVES, like the CCDO information, is Canada Employment and Immigration Commission generated data. Every job listed in the CCDO has a corresponding number. Refer to Appendix 7 for a listing of these. Once the CCDO number of a job title is known, access to information regarding all aspects of the job is easily accessible either from the CAVES data base or the CCDO. The CAVES data base was used to collect the relevant data for each job title because of its ease of use, except for data regarding job duties which were gleaned from the CCDO.

Physician's report. A Physical Capacities Checklist was completed by a physician, outlining the participant's present physical state. A sample of this checklist is included in Appendix 8.

Forms Used

Master data sheet. This data sheet contains all the relevant CCDO and Holland code information for each of the 111 job titles listed in the Career Assessment Inventory. The rows and column on this data sheet perfectly match the rows and columns on the participants' physical abilities templates (described below) in order to minimize coding error. Refer to Appendix 1.

Physical abilities template. The physician's assessment of the participant's physical capabilities was transcribed onto a template for each participant. Each participant's work history was present in their file obtained from the Vocational Consulting Group. For each participant: I have

listed the jobs performed in the past, along with the educational level required for that job, as well as the highest level of schooling completed. The highest educational level achieved was recorded as being their pre-injury obtained level.

Educational level does not change as a rule, unless there is a serious head injury which impairs intellectual functioning. However, the ability to work in certain environments and to deal effectively with specific physical demands of a job may change after an injury. Therefore, a physician's assessment of these factors was used to supplement the participant's profile of his residual capabilities. For example, the physician may conclude that a person can work in both indoor and outdoor conditions, be capable of coping with the environmental conditions: cold, heat, wet/humidity, and hazards, but not with noise/vibrations and fumes/dust/odour, and be capable of doing work requiring moderate strength, and physical demands of : climbing/balancing, stooping/bending, reaching/handling, and talking, but not with hearing and vision.

The above information regarding educational level, temperaments, environmental conditions, and physical demands, was placed onto a template for each participant. The template was designed to provide the coder with easy access to a great deal of information. It is green in colour and allows the coder to move the template from job title to job title on the master data sheet and compare the requirements of the job to the participant's abilities. Refer to Appendix 2.

Participant's Score Sheet is a work sheet containing a list of the 111 job titles listed down the left margin. The work sheet contains the following

column headings: Response (Like/Dislike); Holland codes; temperaments; physical demands; environmental conditions; job duties; physical strength; educational level; physical ability; experience in the task; objective ability to do the task.

Each of the participant's responses on the transcript was identified, compared to the appropriate objective measure, and finally coded as being either congruent (1), incongruent (2), or unable to code (0). Refer to Appendix 3 for an example of the score sheet.

Procedures

Coding. Flow charts were devised to assist the coder in transforming the participants' verbal justifications to numerical data. The flow charts (Figures 1-11) are provided below for a detailed explanation of how this was done. A list of flow chart terms and their definitions is presented in Table 2.

Table 2

Terms Used in the Flow Charts

Terms	Definitions
Category:	refers to the column headings on the score sheet.
Educational level (GED):	refers to the amount of formal and on the job training required to do the job.
Dr.'s report:	medical assessment of the participant's ability to perform the physical demands of the job and in it's environmental conditions per the Physical Capacities checklist. This information is transcribed onto the green Physical ability template.
Job duties:	A description of the job duties for each job title is obtained from the CCDO.
Job title:	refers to one of the 111 job titles inventoried on the occupations section of the CAI, and listed on the right hand side of the participant's score sheet.
Master data sheet:	contains all the CCDO information for each of the 111 job titles. Refer to Appendix 1.
Physical ability template:	green coloured template containing information regarding educational level and temperaments, as well as the participant's present physical capabilities relating to environmental conditions and physical demands as noted on the physician's report. Refer to Appendix 2.

Score sheet:	the form used to code whether a participant was accurate or inaccurate in their perceptions of their own abilities and the demands of the world of work. Refer to Appendix 3.
Score sheet categories:	these are the column headings on the participant's score sheet. The headings, which are also the variables used in this study are as follows: like/dislike/indifferent; Holland codes; temperaments; physical demands; environmental conditions; job duties; experience in the task; strength; educational level; physical ability, and objective physical ability to do the job.
Self perception:	a comment relating to one's view of one's ability as measured by a general level of education obtained, physical strength, or physical ability.
Strength:	refers to the specific physical demand of strength required for the job.
Subject's comment:	the transcribed comment (justification) on the transcript pertaining to the job title.
Transcript:	is the transcribed interview containing the participant's like/dislike responses and his justifications to the job titles.

Symbols and Abbreviations Used in The Flow Charts

Symbols/Abbreviations	Definitions
Ss:	subject/participant
> :	greater than
< :	less than
= :	equal to

P.A.	physical ability
E.C.:	environmental conditions
GED:	educational level
Temp:	temperament

Figure 1. Main flow chart

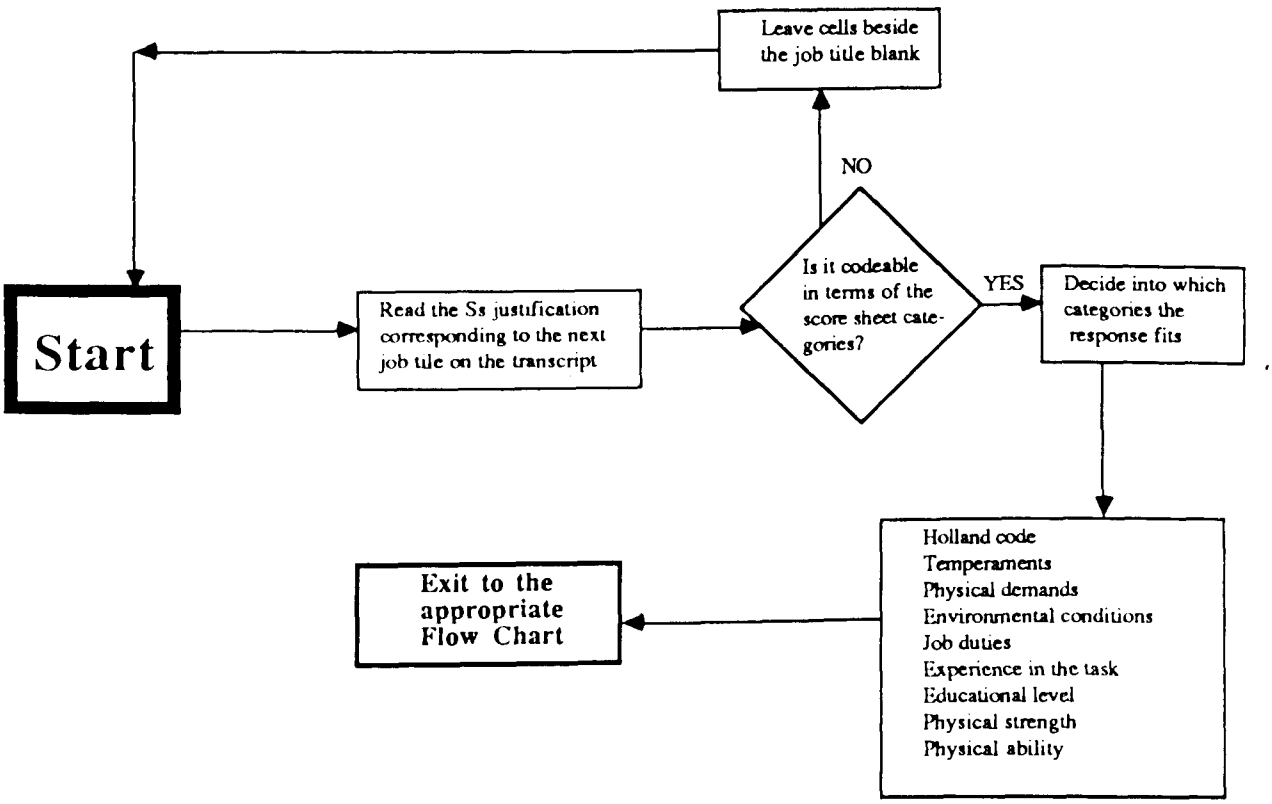


Figure 2. Holland Code Flow Chart

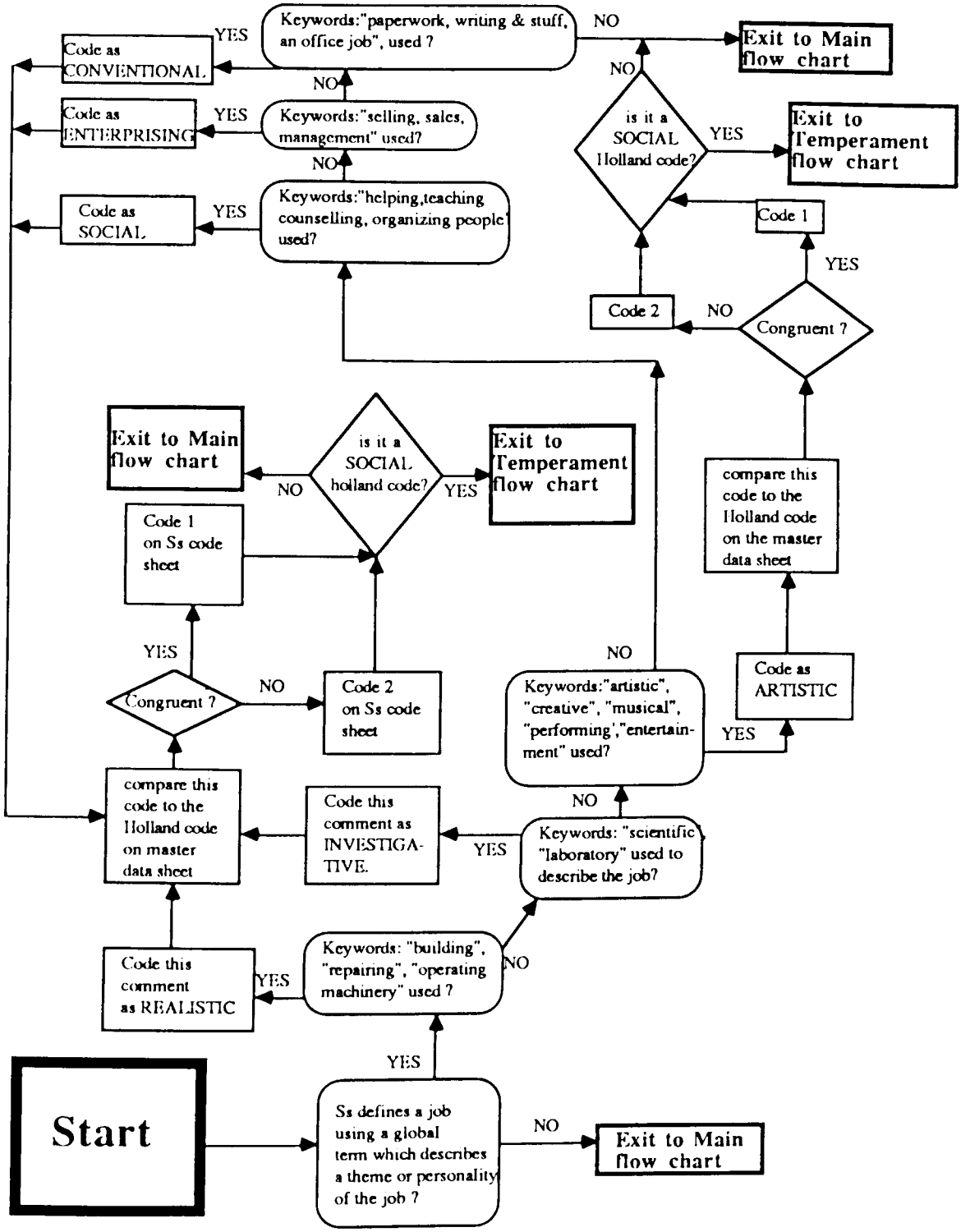


Figure 3. Temperaments Flow Chart

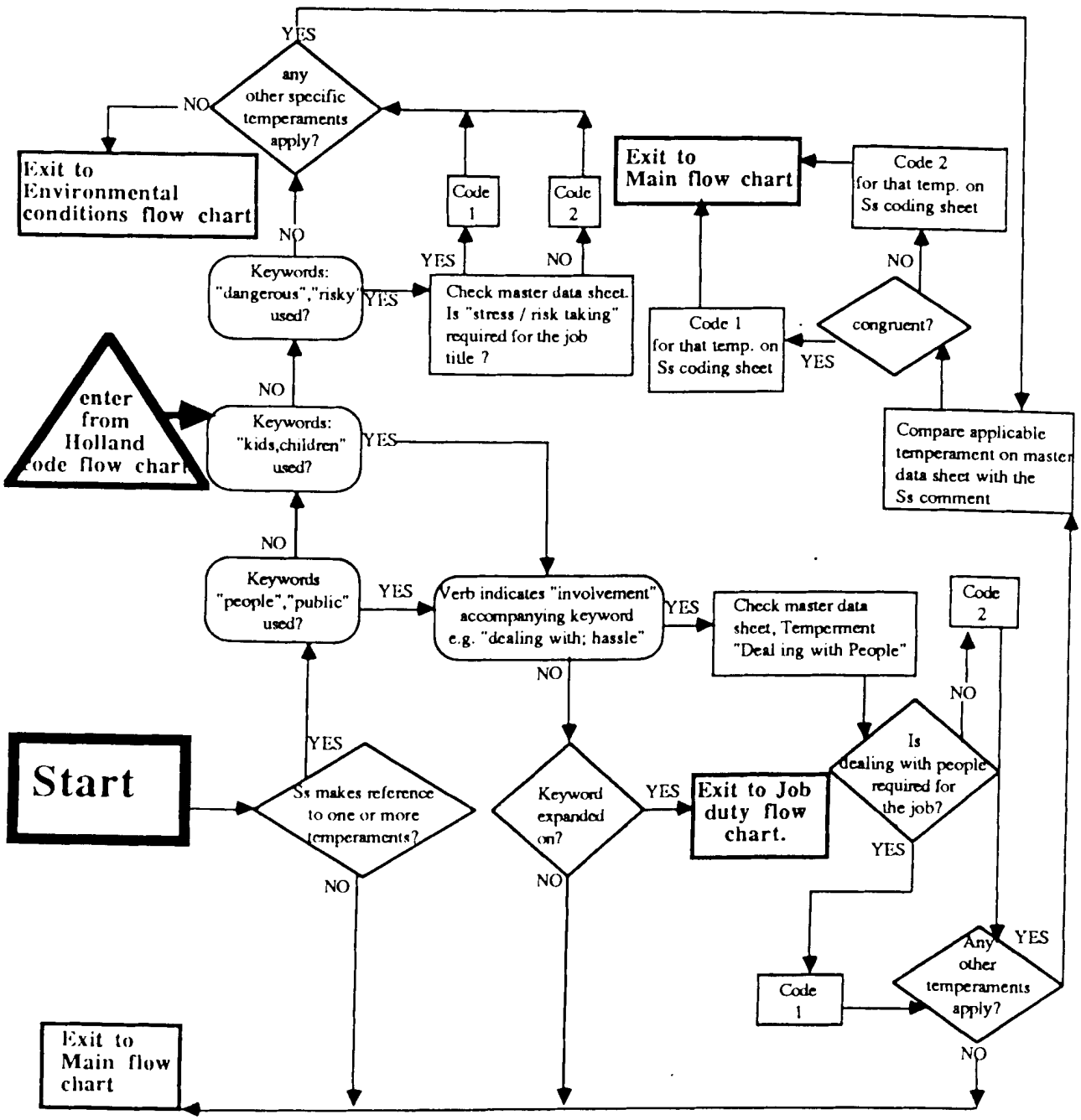


Figure 4. Physical Demand Flow Chart

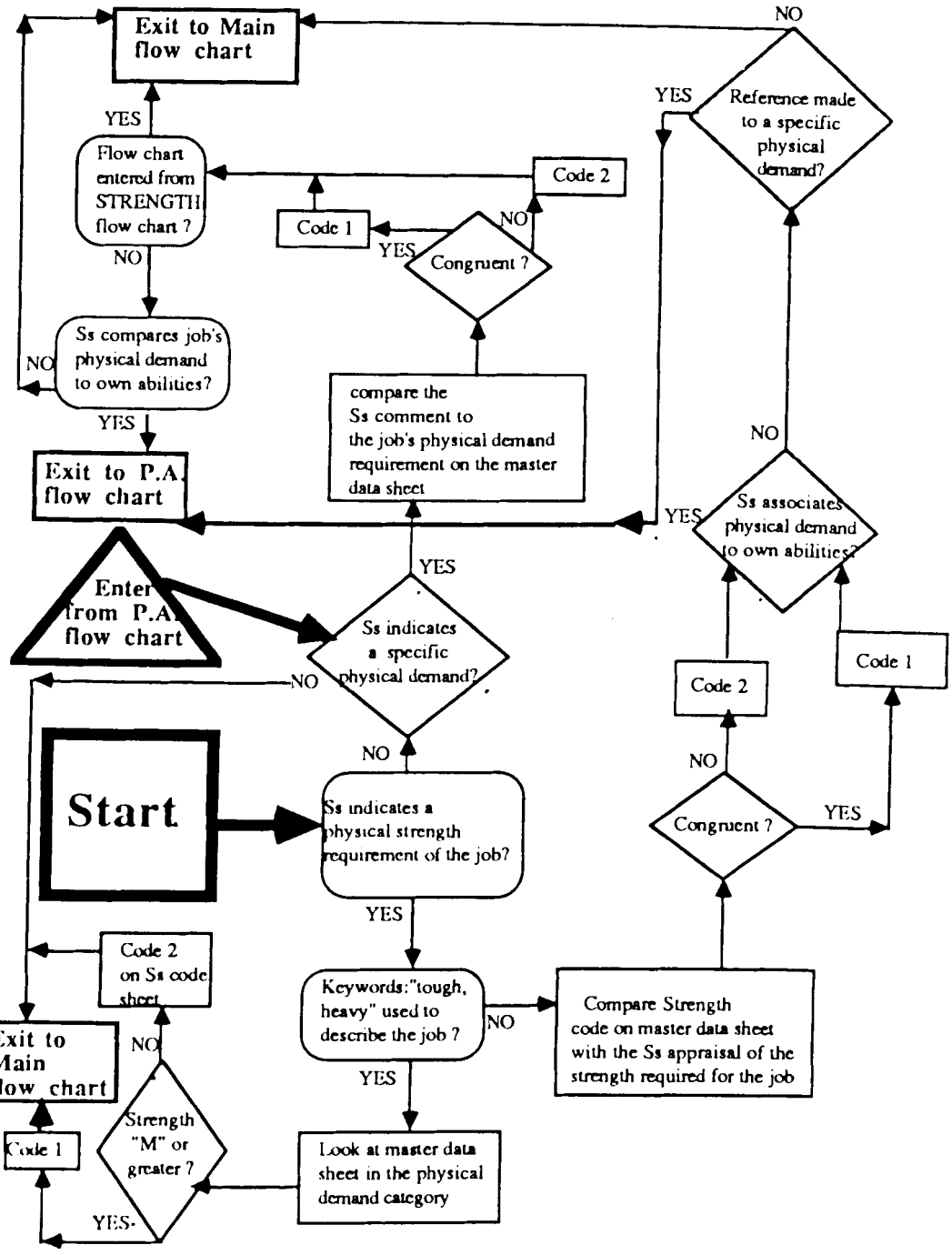


Figure 5. Environmental Conditions Flow Chart

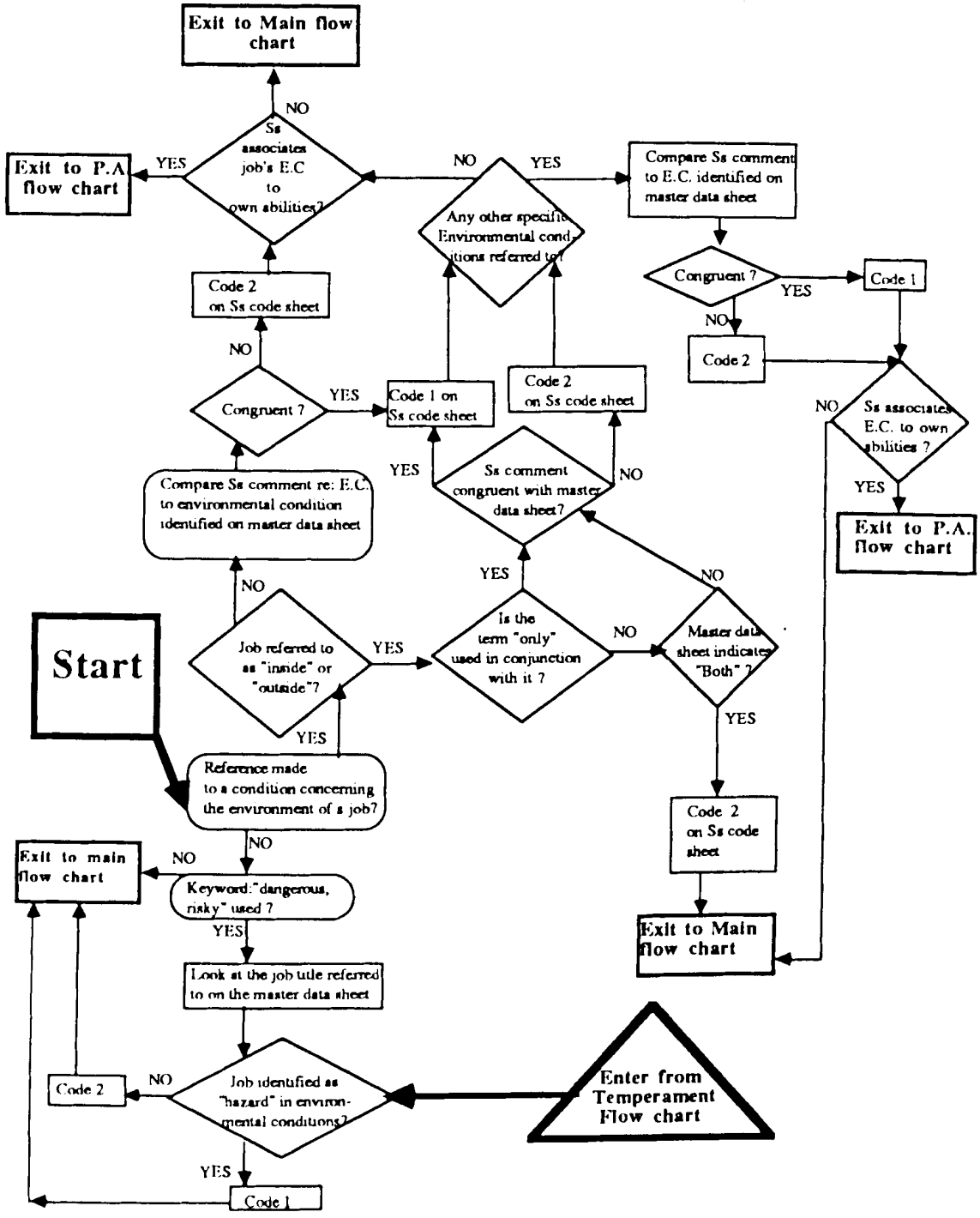


Figure 6. Job Duties Flow Chart

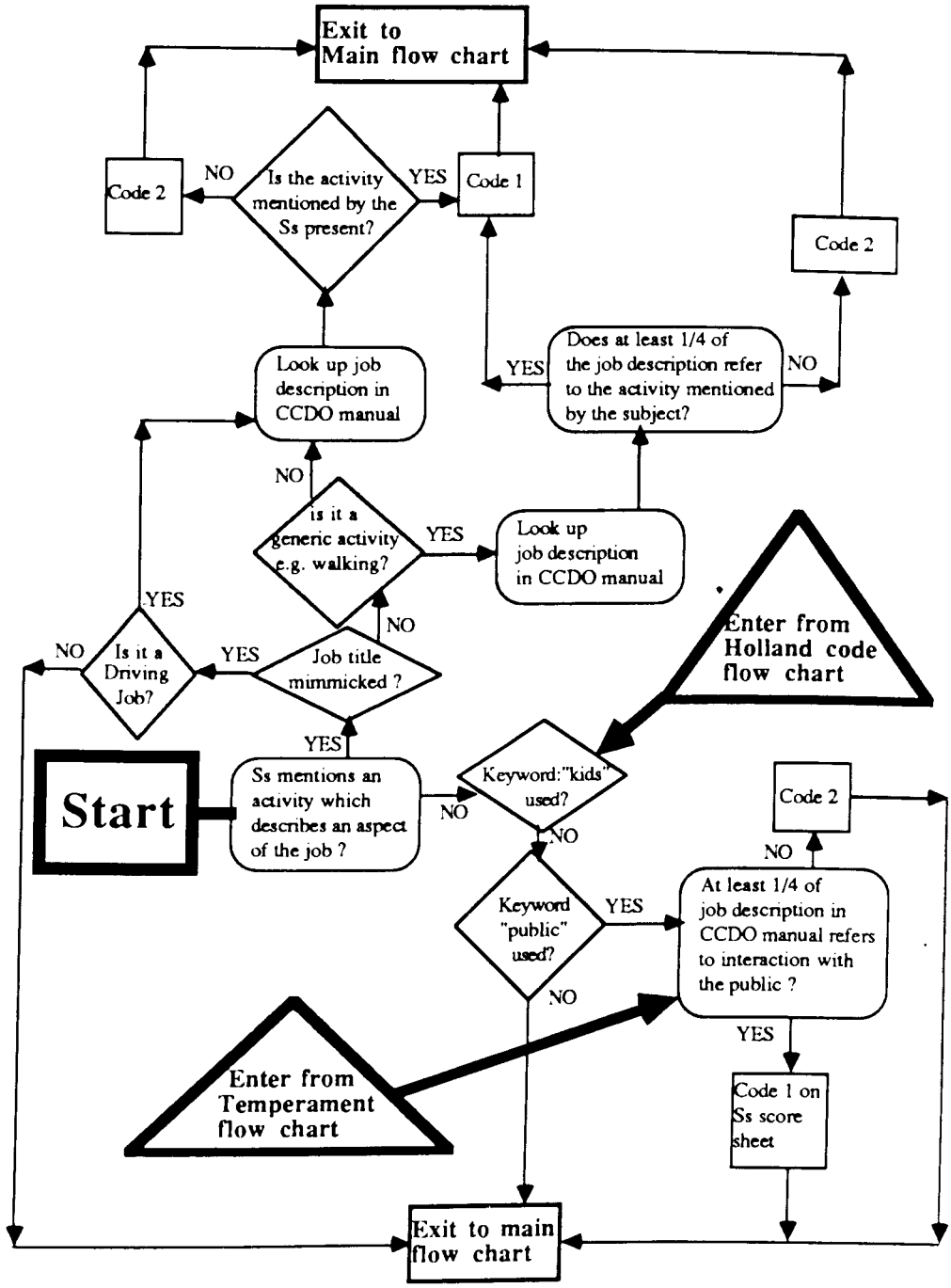


Figure 7. Experience in the Task Flow Chart

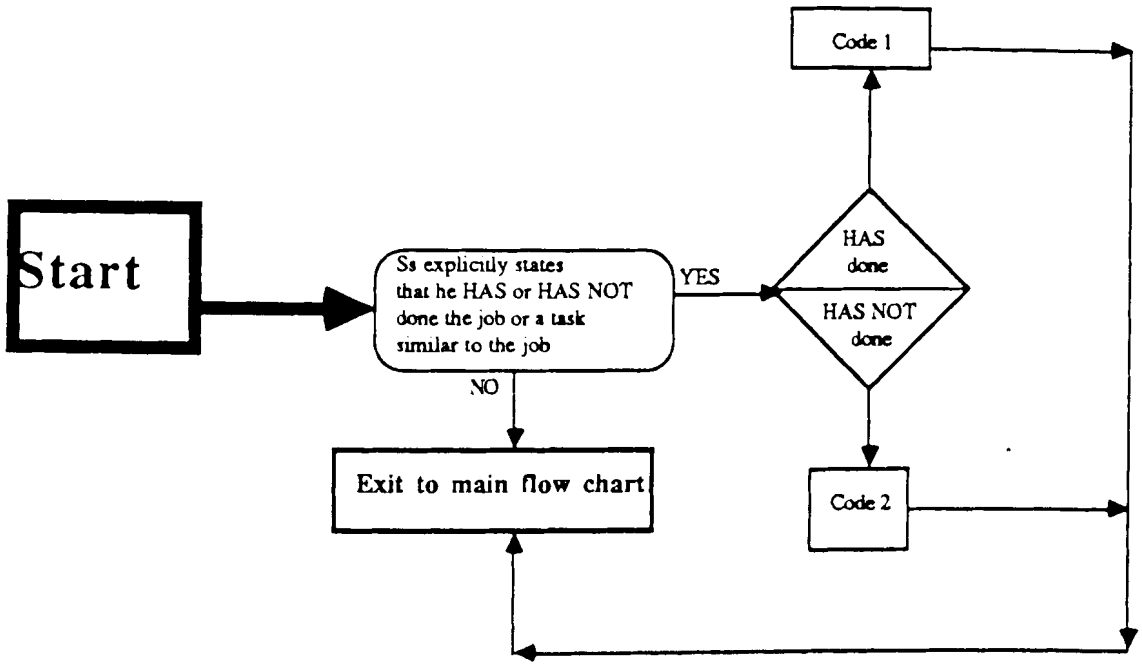


Figure 8. Strength Flow Chart

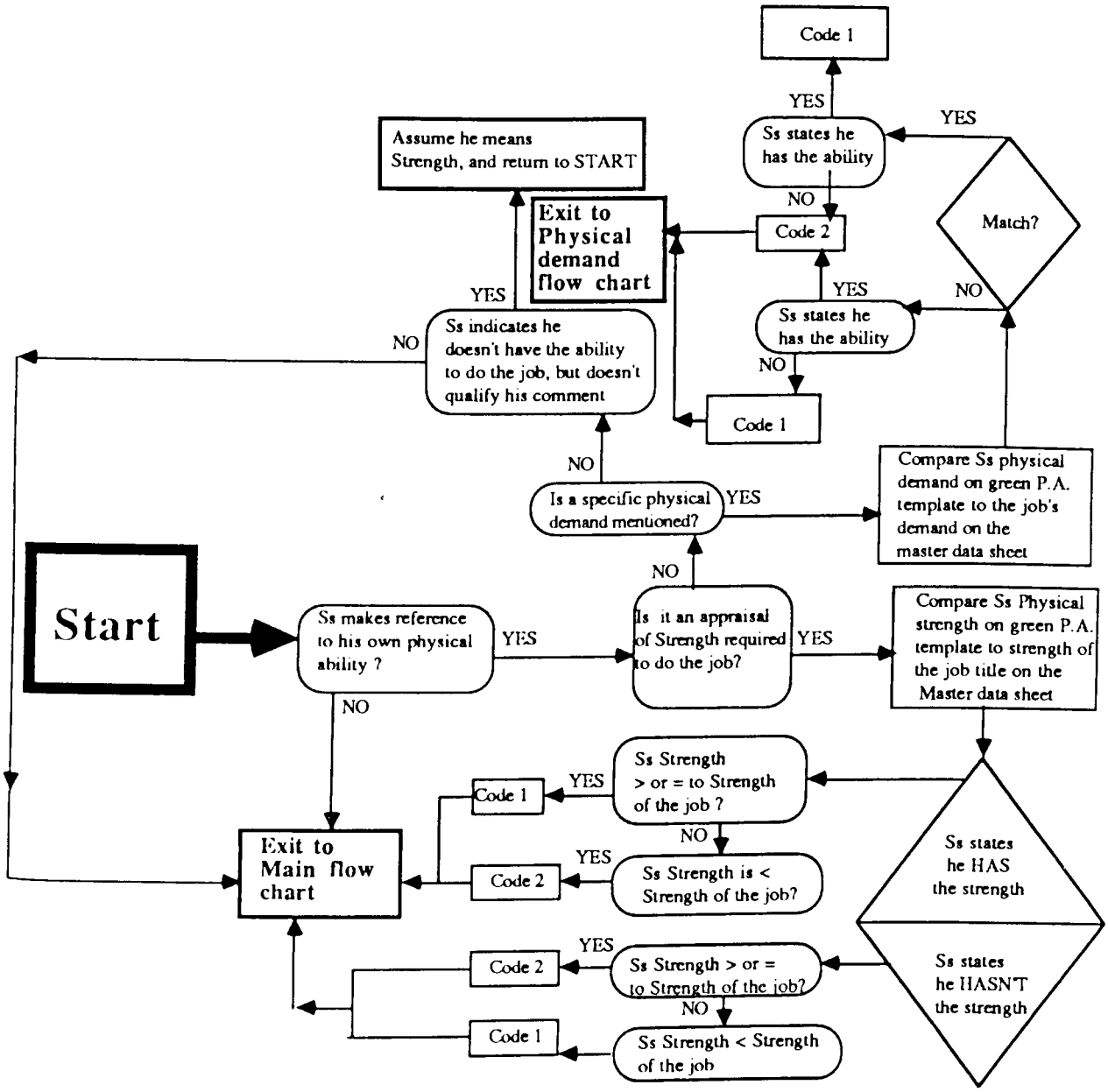


Figure 9. Educational Level Flow Chart
(GED)

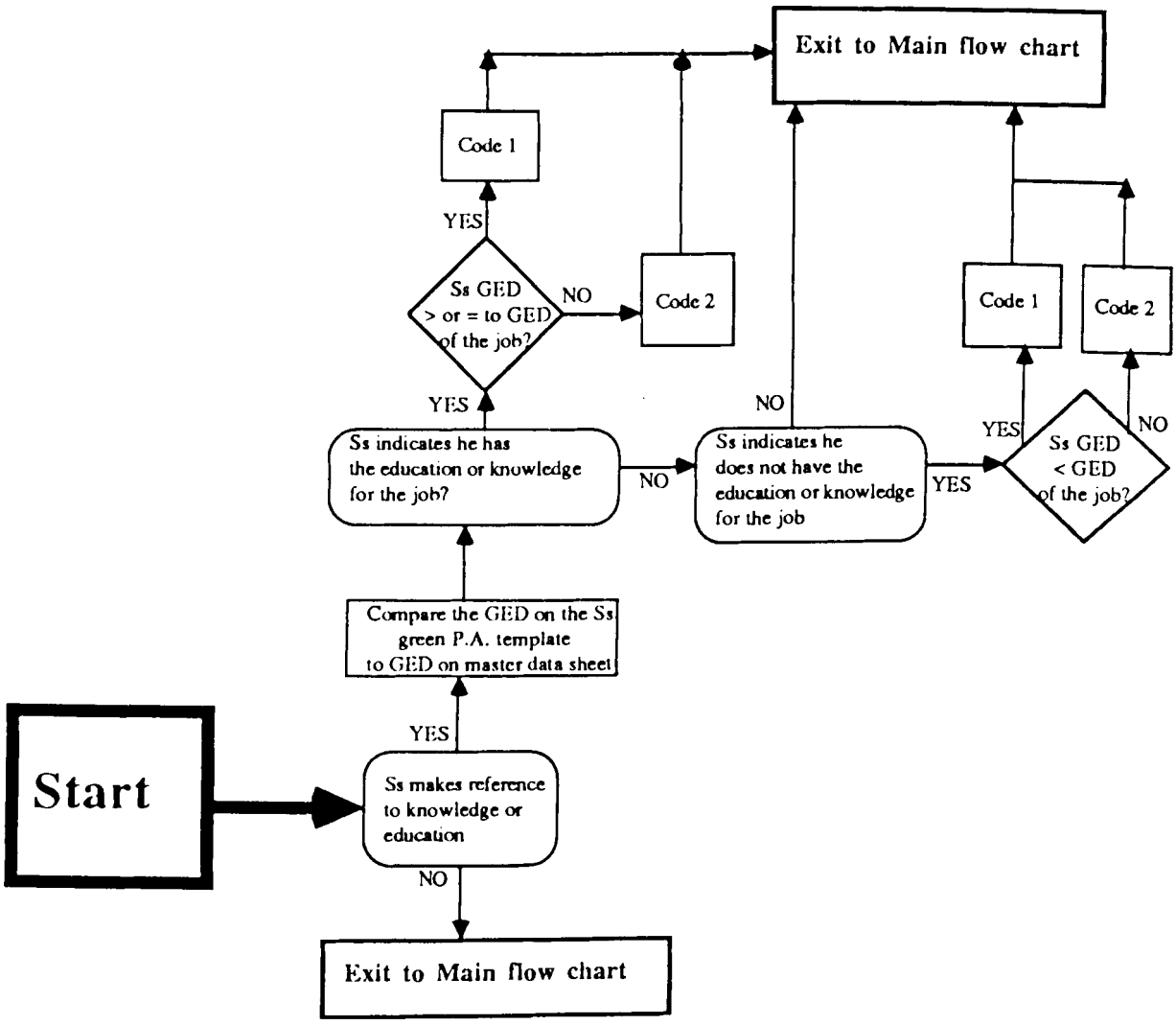


Figure 10. Physical Ability Flow Chart

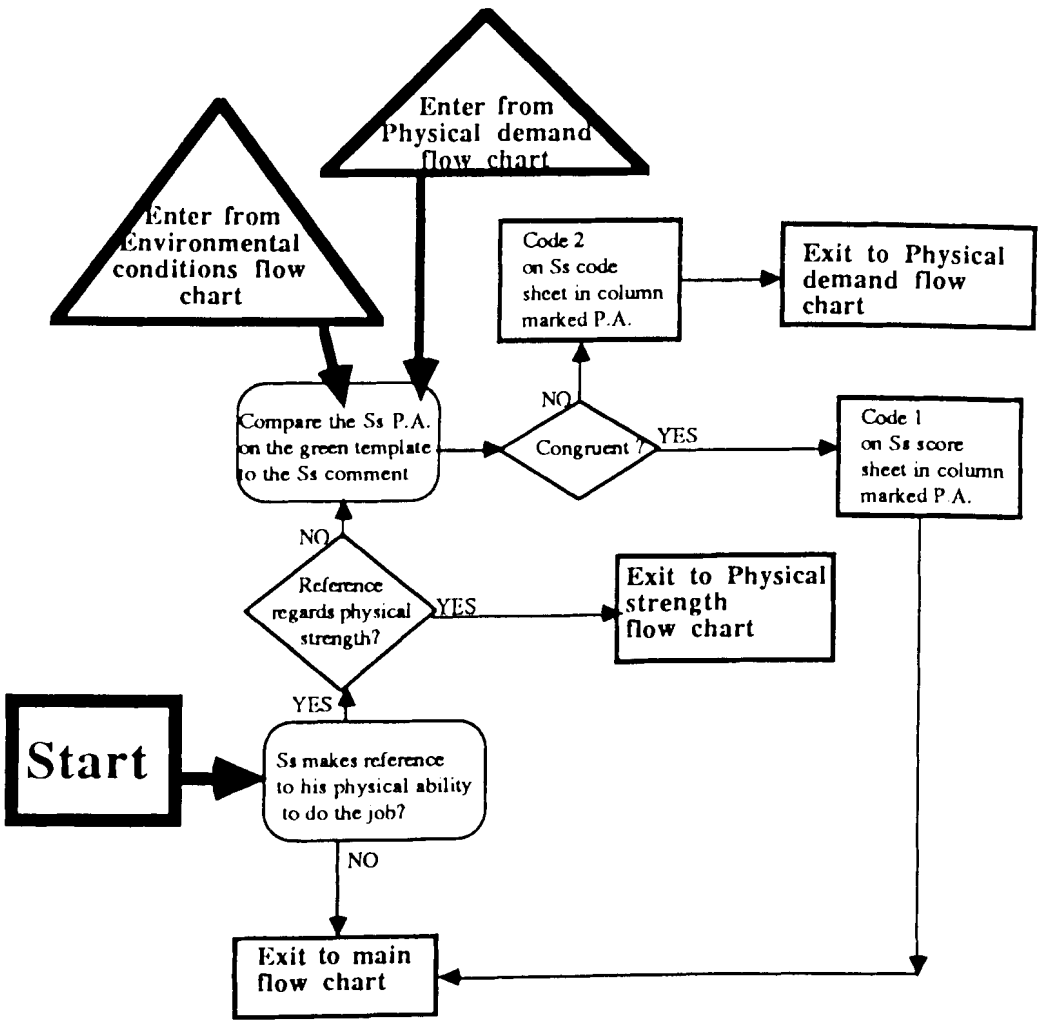
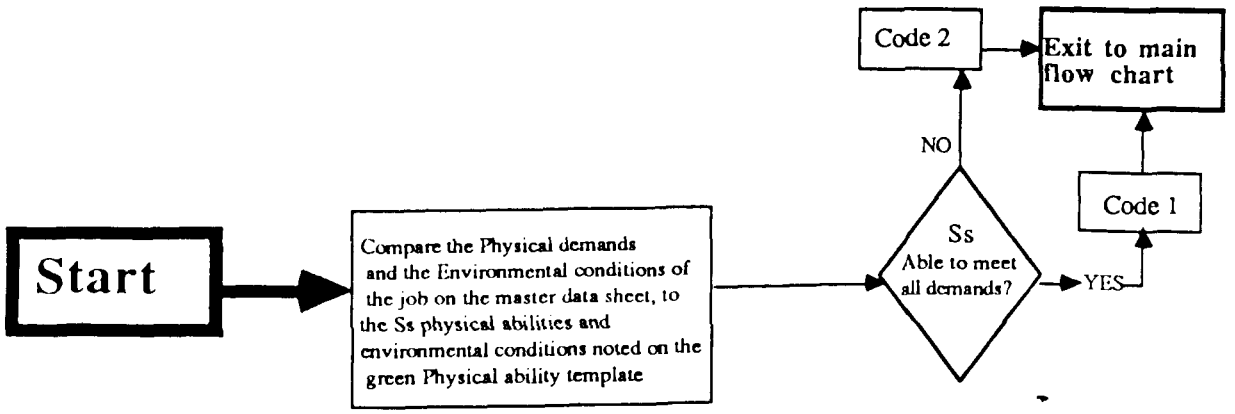


Figure 11. Objective Ability to do the job



A close reading of the main flow chart (Figure 1.) shows that the participant's justification corresponding to the job title on the transcript is first read. If the justification is codeable in terms of: Holland codes, temperaments, physical demands, environmental conditions, job duties, strength, educational level, physical abilities, and experience in the task sub-categories (score sheet categories), the coder decides which of the sub-categories the response fits into, and then turns to the appropriate flow chart and follows each step as indicated. Rules and explanations for coding the transcripts were compiled in code book form. The code book is merely a supplement to the flow charts and is not entirely necessary for the coding procedure. The code book can be found in Appendix 9. Given that the procedure of collecting and coding the data is complicated, I have chosen to describe this procedure utilizing the flow charts. Read each flow chart carefully for an in-depth description of the coding procedure.

In summary, Sheppard's audio tapes of his participants' interviews were first listened to and then transcribed. The reader may refer to Appendix 10 for a description of Sheppard's procedure. A sample transcription of one interview is provided in Appendix 11. Each participant's justifications for liking or disliking job titles were first identified as belonging to one or more of the study variables, then these variables were compared to the appropriate objective data source and the accuracy of the justifications was coded on the participant's score sheet. Refer to Appendix 3 for an example of this score sheet. Each participant's justifications in terms of the sub-categories under the general heading of world of work i.e., Holland codes, temperaments, physical demands of the job, and environmental conditions were compared

with the CCDO criteria in the CAVES data base for each job title in order to assess for congruence between the two reports. Each justification regarding job duties was compared to the job description in the CCDO for congruence between the participant's perception of the job duties, and the job duties identified by CCDO. Each participant's justifications in terms of the sub-categories under the general heading of self perceptions i.e., strength, physical abilities, and educational level were also compared to the physician's report, with the exception of educational level, in order to assess for congruence. Educational level was compared to the CCDO criteria as noted above. Additional sub-categories coded were: experience in the task, objective ability to do the job, and responses given to the job titles, (i.e. Like/Dislike/Indifferent). Flow charts were used to assist the coder in making the above mentioned comparisons and deciding whether or not participants were accurate in their justifications.

Interrater training. I coded all the justifications myself. A second rater was used to check the reliability of the coding procedure. The rater was given the code book and flow charts, and these were explained in detail. Once the rater had a grasp of the material, a transcript was chosen at random and he coded the transcript while I provided instruction and direction. A second transcript was chosen at random and the rater completed this on his own. Any questions he had following this coding were discussed and clarified. After this second trial, the rater was deemed competent in coding the data.

Five additional transcripts were chosen randomly and the rater coded these on his own. Interrater agreement was then computed on these data. The computations are presented below in the Results chapter.

The procedure for data collection and coding has been briefly outlined. For a more in-depth explanation of the procedure, the reader is advised to refer to the code book in Appendix 9, and flow charts illustrated earlier in the chapter.

Chapter III

Results

This chapter reports the findings of the study. The chapter first examines the interrater agreement. Next, the numbers of justifications given are examined for trends, and then the participants' justifications are examined in terms of accuracy. Experience in the task is examined separately because it was coded differently than the other sub-categories (i.e. notation of whether or not participants had experience, not comparison of the participants' justifications with an objective source). The chapter concludes with a summary of the study questions and brief answers to them.

The data were examined by grouping the like and dislike responses separately because there were seven participants for whom the like responses were missing. Consequently, the number of participants is either 13 or 20 depending on the analysis. The data analyses of the frequency of mere justifications regardless of accuracy are descriptive because the data distributions are in many cases extremely skewed, and this in combination with the small sample size would render meaningless the use of parametric inferential analyses. Descriptive and inferential analyses of the accuracy of justifications is provided.

Interrater Agreement

Table 3 shows the percentage agreement between two raters coding the information on the transcripts. The calculation was obtained by taking the total number of agreed upon (including blank cells) justifications and

Table 3
Interrater Agreement Scores
for Each Sub-Category

Sub-Category	Percent Agreement
WORLD OF WORK	
Holland Code	97%
Temperaments	98%
Physical demand	98%
Environmental conditions	98%
Job duties	93%
SELF PERCEPTIONS	
Strength	99%
Educational level	99%
Physical ability	99%
EXPERIENCE IN THE TASK	99%
Overall	98%

dividing it by the total number of agreed upon plus disagreed upon justifications.

Number of Codeable Justifications

Prior to discussing the results, it is important to distinguish between two terms used throughout this chapter: response and justification. For purposes of this study, the term "response" refers merely to the "like" or "dislike" comment given by each participant in response to a job title, whereas the term "justification" refers to the reason given for liking or disliking a job title. It was common for participants to give more than one justification for a response to a job title. It was also common for workers to give justifications which were not easily codeable in terms of the criteria used and therefore these justifications were discarded. An example of such a justification is, " Just not interested". The result of this is that some job titles had several justifications coded and some job titles had none. Each job title had a single response coded.

Table 4 shows the sums and means of the total number of justifications and responses which were given by the participants. The sum of justifications given was obtained by adding across all participants, the total number of justifications given in each category. The sum of total responses given was obtained by adding across all participants, the total number of job titles responded to with either a "like" or "dislike" response. The total number of uncodeable justifications was obtained by adding across all participants, the total number of job titles for which there was a "like" or "dislike" response, but for which no justification was coded. The means were obtained by dividing the sum of either justifications given, or responses given by the total

Table 4

Sums and Means of the Total Number of Justifications and Responses Given

RESPONSES & JUSTIFICATIONS	SUMS Like	SUMS Dislike	Combined Like & Dislike
Total justifications	465	978	
Total responses	355	1129	
Total uncodeable justifications			307
Total justifications (like & dislike)			1443
M Justifications/response	1.31	0.87	
M Justifications/person	35.77	48.90	
M Responses/ person	27.31	56.45	
M uncodeable justifications (n=20)			15.35

Note. n=13 for Likes, n=20 for Dislikes; M= mean

number of participants in each like or dislike analyses, n=13 or 20 respectively. The column labelled "combined like and dislike" contains the totals for the entire group of participants irrespective of like or dislike analyses.

It is important to note that there are more participants in the dislike analysis than the like analysis and so the raw totals may be misleading. When these sums are adjusted by dividing by the number of participants in the analysis, it becomes evident (see mean justifications/person and mean responses/person rows in Table 4) that there are more justifications per person as well as more responses per person given when job titles are disliked, than when they are liked. The mean justifications per response row suggests that participants gave more codeable justifications per response when they liked jobs than when they disliked them.

Table 5 is a more specific description of the data presented in Table 4, as the number representing the total number of justifications given in Table 4 has been disaggregated into sub-categories. The sums and percentages of each of the sub-categories is shown in Table 5 in order to better examine which aspects of the world of work or self perceptions are used as justifications for liking or disliking job titles.

Each sub-category sum was obtained by totaling the number of justifications which were given in that sub-category and grouping them according to whether participants referred to liked or disliked job titles. For example, there were 99 justifications regarding the personality of jobs (Holland codes) given by participants for the job titles they liked. The percentages were derived by taking the sum of the justifications given in a

Table 5

Sums and Percentages of the Total
Number of Justifications for the Sub-Categories

SUB-CATEGORIES	SUMS		PERCENTAGES	
	Like	Dislike	Like	Dislike
WORLD OF WORK				
Holland codes	99	102	21.3	10.4
Temperaments	29	121	6.2	12.4
Physical demands	16	63	3.4	6.4
Environmental conditions	41	127	8.8	13.0
Job duties	148	399	31.8	40.8
TOTAL World of Work	333	812	71.6	83.0
SELF PERCEPTIONS				
Strength	9	14	1.9	1.4
Educational level	16	89	3.4	9.1
Physical ability	13	21	2.8	2.1
TOTAL Self Perceptions	38	124	8.2	12.7
EXPERIENCE				
Experience in the task	94	42	20.2	4.3

Note. n=13 for Like, n=20 for Dislike

sub-category and dividing that number by the total number of justifications given (Table 4). As an example, the sub-category of Holland codes under the world of work category in Table 5 is shown to be 21.3% of the total number of justifications given. This number was obtained by dividing 99, which is the sum of the Holland code justifications given when liking job titles, by 465, which is the total number of justifications given when liking job titles from Table 4. Thus, the percentages represent the percentage of justifications given in a particular sub-category, out of the total number of justifications given. The same was done for all job titles which were disliked. Computations for like and dislike analyses were done separately.

On examination of the sums columns for the categories of world of work, self perceptions, and experience in the task ,Table 5 shows the majority of the justifications given for liking or disliking job titles were in the general category of world of work. Examination of the sums shows overall that there were few justifications given regarding self perceptions, and that justifications regarding strength and physical ability were seldom given. The sums in the dislike analysis are higher than those in the like analysis. However, this is a reflection of the larger sample size in the dislike analysis. The sums by themselves are not particularly helpful in describing the data. Examination of the percentages reveals a clearer picture of the data as the percentages take into account the sum of each sub-category divided by the total number of justifications given.

The top half of Table 5 shows the sub-categories comprising the general category of "world of work". The bottom half of Table 5 shows the sub-categories comprising the categories of self perceptions and experience in the

task. Examination of the percentages reveals that justifications regarding the world of work were given more frequently than justifications regarding self perceptions. Within the category of world of work, justifications regarding job duties were given most frequently for both liked and disliked job titles. The rank order of the sub-categories changes slightly depending on the analyses (like or dislike). Justifications regarding world of work were given 8.7 times as frequently as self perceptions when jobs were liked, and 6.5 times as frequently when jobs were disliked. Within the category of self perceptions, justifications regarding strength were the least frequently used.

The last category in Table 5 to be examined is experience in the task. The sums columns show that having experience in a task related to the job title was given twice as often as a justification when job titles were liked than when they were disliked, despite the fact that there were fewer participants in the like analyses. In fact, of all justifications given, having experience in a task related to the job title was used 20.2% of the time when jobs were liked. The percentages reveal that justifications regarding having experience in a task related to the job title were used 2.5 times as often as justifications regarding self perceptions when job titles were liked, and 0.34 times as often when jobs were disliked.

In summary, a descriptive analysis of the data reveals that workers overall give justifications regarding the world of work far more often than justifications regarding their abilities (self perceptions). More specifically, analysis of the percentages reveals that justifications regarding job duties out ranks all other sub-categories, with there being slightly more justifications

given when jobs are disliked than when liked. It is apparent from examining the percentages in Table 5 that justifications regarding having experience in a task related to the job title constitute 2.5 times the total percentage of justifications given in the entire category of self perceptions when liking job titles.

The percentages in Table 5 suggest that there are differences in the types of justifications used depending on whether these justifications are in response to liking or disliking job titles. The percentages do not allow for comparison between the like and dislike columns, therefore the data were converted to a form which would allow for this comparison. Table 6 illustrates possible differences between these two analyses. The figures in the table were obtained by taking the total number of justifications in a sub-category given by each participant and dividing by the total number of justifications given by each participant summed across all variables. Each proportion in each sub-category was then summed and divided by the number of participants in the analysis in order to obtain a mean proportion per person for each sub-category.

Examination of the means of the Likes and Dislikes shows that there are relative differences in the following sub-categories: Holland codes, temperaments, job duties, educational level and experience in the task. The mean differences between like and dislike analyses for :physical demands, environmental conditions, strength, and physical ability are .02 or less. It is noteworthy that the standard deviations were quite large in comparison with the means. Thus the distributions are decidedly non-normal. Confidence bands were placed around the proportions for the like and dislike

Table 6

Mean Proportion of Justifications Given per Sub-category

	LIKES			DISLIKES		
SUB-CATEGORIES	Mean	S.D.	S.E.	Mean	S.D.	S.E.
WORLD OF WORK						
Holland codes	.20	.12	.19	.11	.10	.12
Temperaments	.05	.06	.10	.13	.09	.13
Physical demands	.05	.05	.10	.07	.06	.10
Environmental conditions	.10	.09	.14	.11	.12	.12
Job duties	.33	.15	.22	.39	.13	.18
SELF PERCEPTIONS						
Strength	.01	.03	.05	.02	.03	.05
Educational level	.03	.04	.08	.11	.13	.12
Physical ability	.03	.06	.08	.03	.03	.06
EXPERIENCE IN THE TASK	.20	.14	.19	.04	.05	.07

justifications. Because of the small sample size and exploratory nature of this study, a 90 percent confidence interval was selected. A two-tail analysis of this type uses a Z- score of 1.67. Thus, the standard errors were computed for the mean proportions and multiplied by 1.67. The third column in Table 6 reports those confidence intervals. It is recognized that the distributions are skewed and that calculation of the standard error confidence intervals are problematic for such data. However, the data are so peculiar that any inferential statistical method would be problematic. Standard error confidence bands allow for less arbitrary decision making regarding the data than merely sighting the data, and given the exploratory nature of the analysis and small sample size, this method appears to be appropriate. A visual inspection of Figure 12 reveals that there is no difference between the like and dislike means.

Accurate Justifications

The previous section focussed on the number of justifications given because it was of interest to examine the frequency of which sub-categories were used as justifications for job title preference. Data in Table 5 suggested that participants used different sub-categories to justify their job title preferences depending on whether they liked or disliked job titles. However, an examination of the standard error confidence intervals revealed that there was no difference between the like and dislike analyses.

The accuracy of the given justifications was not addressed in the previous section. This section addresses that issue in order to examine the participants' knowledge about the world of work and their abilities.

Figure 12. Standard Error bands of the mean proportion of justifications given, comparing like and dislike responses.

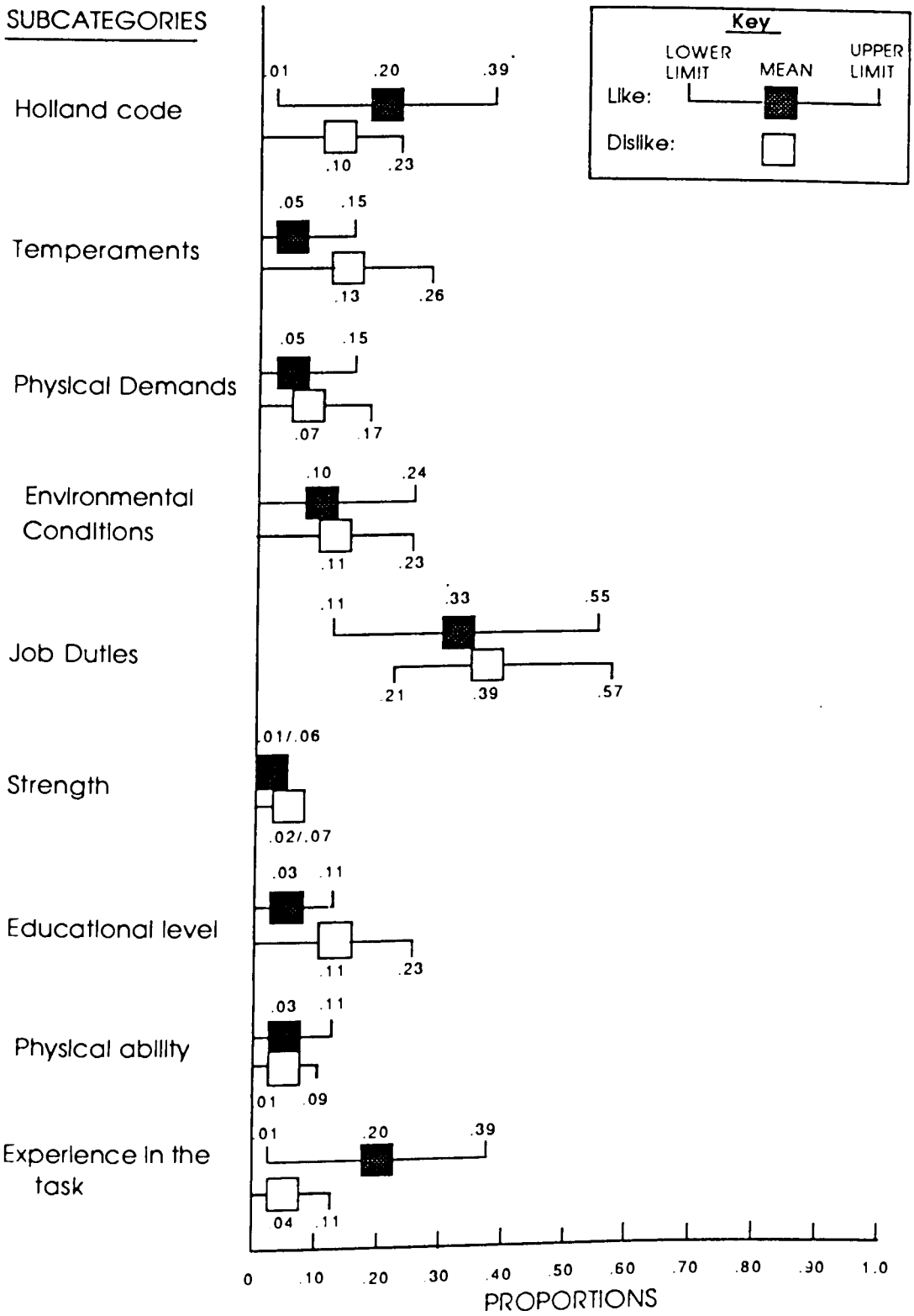


Table 7 describes the sums and percentages of the accurate justifications given for each of the sub-categories of world of work and self perceptions. The sums represent the total number of accurate justifications given in each sub-category. The percentages represent the number of accurate justifications given in a particular sub-category divided by the total number of justifications given in that sub-category. The latter number is shown in Table 5 corresponding to each sub-category.

It is apparent from examining the sums in Table 7 that there were far more accurate justifications given regarding the world of work than regarding their own abilities (self perception). Bear in mind that there were far more total justifications given in the area of world of work than in the area of self perceptions. The percentages suggest that overall, workers are more knowledgeable about the world of work than about their own abilities.

The top half of Table 7 shows the sub-categories of the world of work. The figures in this part of the table represent the participants' knowledge of the world of work for the job titles to which they responded with either a like or dislike response. The sums reveal that workers gave accurate justifications more frequently when they were talking about job duties. The next highest ranking sums are Holland codes in the like analyses and environmental conditions in the dislike analyses. The sums are not particularly useful in describing the data because of the differences in the number of participants in each analysis. The percentages which have been adjusted for this difference are more useful figures to examine.

Table 7

Sums and Percentages of the Accurate Justifications

SUB-CATEGORIES	SUMS		PERCENTAGES	
	Like	Dislike	Like	Dislike
WORLD OF WORK				
Holland codes	94	95	94.9	93.1
Temperaments	26	98	89.7	81.0
Physical demands	14	56	87.5	88.9
Environmental conditions	41	114	100.0	89.8
Job duties	128	292	86.5	73.2
Total World of Work	303	655	90.9	80.7
SELF PERCEPTIONS				
Strength	2	9	22.2	64.3
Educational level	12	56	75.0	62.9
Physical ability	9	15	69.2	71.4
Total Self Perceptions	23	80	60.5	64.5
OVERALL ACCURACY				
Total accurate justifications	326	735	87.9	78.5
Total justifications (excluding experience in the task)	371	936		

% accuracy is calculated by dividing the raw number of accurate justifications by the raw number of codeable justifications given for that sub-category.
Note: n=13 for Likes, n=20 for Dislikes; M= mean
Total # of justifications excludes experience in the task because this sub-category was not coded in terms of accuracy.

The most noteworthy finding that results from a comparison of the like and dislike percentages in Table 7 is that workers were not the most knowledgeable about job duties, as the sums suggest. Workers were 100% accurate about the environmental conditions of jobs they like. This percentage decreases slightly to 90% accuracy when they used this justification for jobs they disliked. The next highest ranking sub-category when liking job titles is Holland codes (personality of the job). The other sub-categories are relatively close in their rank order of percentages. The rank order of accurate justifications changes slightly when examining the percentages of the workers' dislikes. Holland code was the most often accurate justification, followed by environmental conditions, physical demands and temperaments which were all relatively similar in their percentages. Job duties ranked as being the least accurate justification when workers disliked job titles. This is also the case in the like analysis however, the percentage is not as low as in the dislike analysis. The percentages in the total world of work row suggest that workers were more accurate about the world of work when they liked job titles than when they disliked them.

The bottom half of Table 7 represents the workers' knowledge of their abilities (self perception). When examining the sums columns, it is evident that compared with the level of accuracy for the world of work justifications, in general the accuracy of justifications concerning self perceptions is lower. Again, recall that the total number of justifications given in the self perceptions category is low, as shown in Table 5. The percentages columns show that workers gave more accurate justifications regarding their

educational level when responding to job titles they liked, and were least accurate about their strength. The low accuracy in strength may be a reflection of the generally low number of justifications given. On the other hand, workers were most accurate about their physical abilities when responding to job titles they disliked. The percentages in the total self perception row suggest that there is little difference (4%) overall between the like and dislike analyses. The percentages in the overall accuracy section of Table 7 suggest that overall, workers are generally more accurate in their justifications about work and their abilities when they like job titles than when they dislike them.

Even though these workers most frequently gave justifications regarding job duties (Table 6), they were least accurate about this sub-category when examining the general category of world of work (Table 7-%). They were most accurate about environmental conditions of jobs when they liked job titles yet, Table 6 shows that this sub-category ranks only as the third highest in terms of the number of justifications given when liking job titles. Environmental conditions ranks second highest, along with Holland codes, in the dislike analysis, suggesting that workers are not necessarily most accurate in the sub-categories they used most frequently.

In the area of world of work, physical demands and temperaments were least frequently used as justifications when liking jobs. Physical demands were used 2.6 times as often when disliking jobs than when liking them. These two sub-categories also rank as being the lowest in terms of accuracy with the exception of job duties (Table 7-%). Justifications regarding physical demands were used least frequently when jobs were disliked, yet this

sub-category ranked as being a close third out of five sub-categories for accuracy.

In the category of self perceptions, educational level was the most frequently given justification when jobs were disliked, yet workers were not the most accurate regarding this sub-category in the dislike analysis (Table 7-%). Justifications regarding educational level when jobs were liked were given as frequently as justifications regarding physical ability (Table 6), yet the justifications regarding educational level were slightly more accurate than physical ability. Justifications regarding educational level were given 3.7 times as frequently when jobs were disliked than when they were liked, yet workers were less accurate about educational level when disliking job titles. Workers were least accurate about educational level when disliking job titles. Workers were least accurate about their strength when liking jobs, and this sub-category was infrequently used for both like and dislike analyses. Table 7, percentages columns, shows justifications regarding strength to be almost three times more accurate when job titles are disliked than when they are liked. The low frequency of justifications in the strength sub-category renders the percentages suspect.

The distributions are all non-normal, as is shown graphically in Figure 13 which displays a box and dot graph. The box and dot graph shows the distribution or spread of the accuracy data for each of the sub-categories in each of the like and dislike conditions. The data shown are the number of accurate justifications given. The three horizontal lines of the box represent the 25th, 50th, and 75th percentiles. The x's represent the highest and lowest values. The distribution in each sub-category is skewed, with the data in self

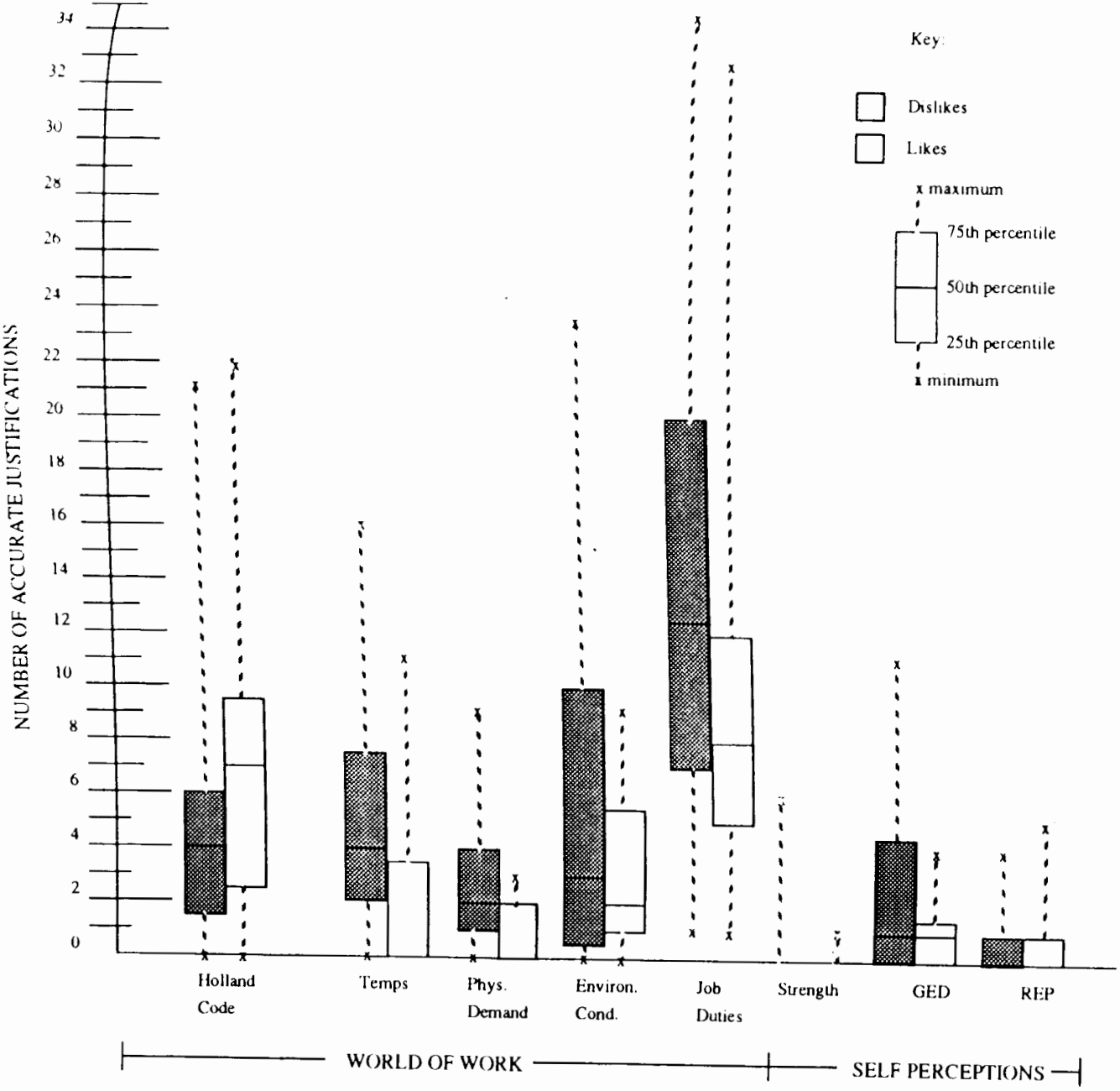


Figure 13. Box and Dot Graph of the Number of Accurate Justifications Given

perceptions being the most skewed. The most even distribution is in the sub-category of job duties, and the most skewed distribution is in the sub-category of strength.

Due to the extremely skewed nature of distributions in Table 7, the data were aggregated in a slightly different manner in order to facilitate inferential statistical analysis. Table 8 shows the means and standard deviations of the proportion of justifications given which were congruent in each sub-category. The means were derived by summing each participant's proportion of congruent justifications given in each sub-category and then dividing by the number of proportions given. The proportion was calculated by taking the number of correct justifications and dividing by the total number of justifications given. As it was possible to have no justifications in a particular sub-category, and thus accuracy was not possible to calculate, the sample size used for calculating the mean changes depending on the number of proportions available.

Examination of the means and standard deviations in Table 8 reveals less skewedness in the distributions for each of the sub-categories than those in Table 7. Unlike the figures in Table 7, the standard deviations in Table 8 are generally lower than the means for all sub-categories except for strength, therefore it is feasible to use inferential statistical analysis for these data.

First, examination of the means reveals the trend of apparent differences between like and dislike analyses mentioned earlier in this section. Overall, Table 8 reveals that workers are generally more accurate about the world of work than about their own abilities. Within the category of world of work, workers were most accurate about environmental conditions when they liked

Table 8

Means and Standard Deviations Of The Proportions Congruent For Each Sub-Category

SUBCATEGORY	LIKE n	Mean	S.D.	S.E	DISLIKE n	Mean	S.D.	S.E.
WORLD OF WORK								
Holland codes	12	.97	.05	.08	19	.96	.08	.08
Temperaments	7	.78	.37	.26	17	.84	.21	.15
Physical demands	9	.89	.22	.17	18	.92	.15	.11
Environmental conditions	11	1.00	.00	0	16	.90	.18	.13
Job duties	13	.85	.14	.17	20	.74	.13	.16
Mean World of Work		.90				.87		
SELF PERCEPTIONS								
Strength	4	.30	.48	.38	8	.56	.50	.29
Educational level	7	.81	.24	.25	13	.68	.37	.22
Physical ability	5	.74	.43	.33	12	.67	.45	.23
Mean Self Perceptions		.62				.64		

Note. n=13 for like, n= 20 for dislike; Standard Error (S.E.)= $\sqrt{\frac{p.q}{n}} \times 1.67$

jobs, and about Holland codes when they disliked jobs. This is the same finding as presented in Table 7. However, the overall difference in means between the like and dislike analyses in the world of work, as noted by the mean world of work row, is minimal.

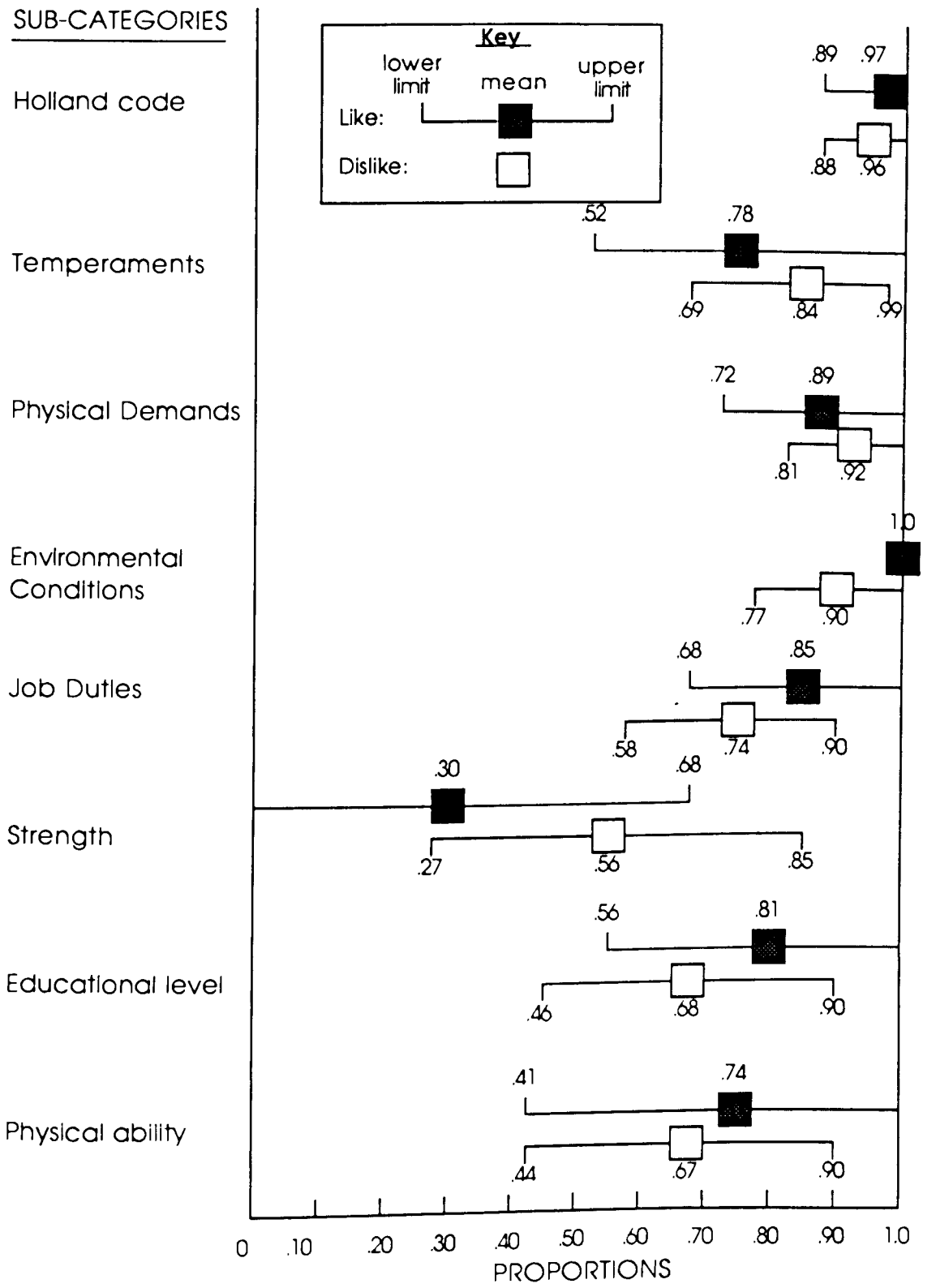
Examination of the category of self perceptions reveals differences between each of the sub-categories. The largest difference is in the strength sub-category. However, the difference between the means in the overall category of self perception is only .02 when the like and dislike analyses are compared.

Inferential statistics

Ninety percent confidence bands were placed around the mean proportion accurate for each of the sub-categories in order to examine the differences between the sub-categories. Due to the skewed nature of the data, any inferential statistical method implying a greater level of rigor than confidence intervals would be misleading. The fourth and eighth columns in Table 8 list the standard error for each sub-category. This figure was obtained by calculating the mean proportion and multiplying it by a Z-score of 1.67.

A visual inspection of Figure 14 reveals a difference in the environmental conditions sub-category when comparing the like and dislike analyses. There are no other differences between sub-categories when comparing the like and dislike analyses, negating the apparent trend toward differences noted in earlier tables. When examining the standard error confidence intervals between sub-categories within the like analysis, it is apparent that environmental conditions (like analysis) confidence band has no overlap with

Figure 14. Standard Error bands of the mean proportion of accurate justifications given, comparing like and dislike responses



the strength sub-category, and minimal overlap with all others, indicating that there may be a statistical difference between the environmental conditions sub-category and all others, when examining accuracy of perceptions. The confidence bands in the strength sub-category do not overlap with: Holland codes, physical demands, environmental conditions and job duties. However, the strength sub-category is extremely skewed and has a small sample size, therefore interpretation regarding this sub-category is highly questionable.

Examination of the dislike analyses reveals virtually no overlap in confidence bands between Holland codes and job duties, Holland codes and educational level , Holland codes and physical ability , and Holland codes and strength, indicating that accuracy regarding Holland codes may be statistically different from the aforementioned sub-categories. There is minimal overlap between physical demands and strength, physical demands and job duties, suggesting a trend toward possible differences between physical demand and these two sub-categories. The accuracy of workers' justifications regarding overall personality of the job (Holland code), job duties, educational level their physical ability and physical demands of job titles may be areas for more in-depth future study. It would be of interest to identify a particular area of work or personal ability about which workers are consistently accurate or consistently inaccurate.

Experience in the Task

The category of experience in the task was scored differently from the other categories. It was scored dichotomously as: yes, participant has experience, or no, participant has no experience. It was not possible to obtain

data about these workers' job histories other than what they had reported. Thus, experience in the task could not be coded in terms of congruency as were the other sub-categories. Therefore this category is presented in a separate section below.

Table 9 shows the total number of justifications given regarding experience in the task. Both like and dislike responses were required for the formation of this table, therefore the number of participants used is 13 due to missing data on the like responses for 7 of the participants.

The figures represent the total number of justifications given in the various experience-job title preference combinations for 13 of the participants. For example, the figure "94" in the experience-have column indicates that participants stated 94 times they liked a job title because they had experience in it.

The data show that there is a large discrepancy between the like and dislike analyses. Workers preferred jobs because they had experience in a task related to the job, more often than disliking a job because of having, or not having experience. It is interesting to note the number zero which appears in the cell in Table 9 which corresponds to the Like-Have not combination. At no time did these participants justify their liking of a job title because they had no experience in it. Logically, this combination is a possible one, (e.g. "I've never done that before, it might be interesting and challenging") however, it did not surface with this group of participants.

The data are next grouped according to participants who obtained differentiated versus undifferentiated profiles on the CAI in Sheppard's study. As there were missing data for the like justifications, it seemed

Table 9

Experience in the Task:
Number of Justifications Given Compared to Prior Experience

PARTICIPANTS' RESPONSES TO JOB TITLES	EXPERIENCE IN THE TASK HAVE	HAVE NOT
LIKE	94	0
DISLIKE	23	19

senseless to compare both like and dislike justifications. The standard errors of the dislike justifications were examined in order to see if there was a statistically significant difference in the accuracy of justifications between these two groups. Only the totals for the world of work and self perceptions categories are examined. More in-depth analyses was not conducted as this was not a major question in the present study, and many comparisons regarding the sub-categories have already been done. There is a problem with calculating many comparisons (e.g. t-tests) because the sub-categories are not independent and each time a calculation is computed, the risk of making a type I error, i.e. rejecting the null hypothesis when it should have been accepted, is increased.

Table 10 displays the mean proportions congruent for the total number of justifications given in the categories of world of work and self perceptions. The means suggest that the undifferentiated group were more accurate about the world of work and less accurate about their own abilities than the differentiated group.

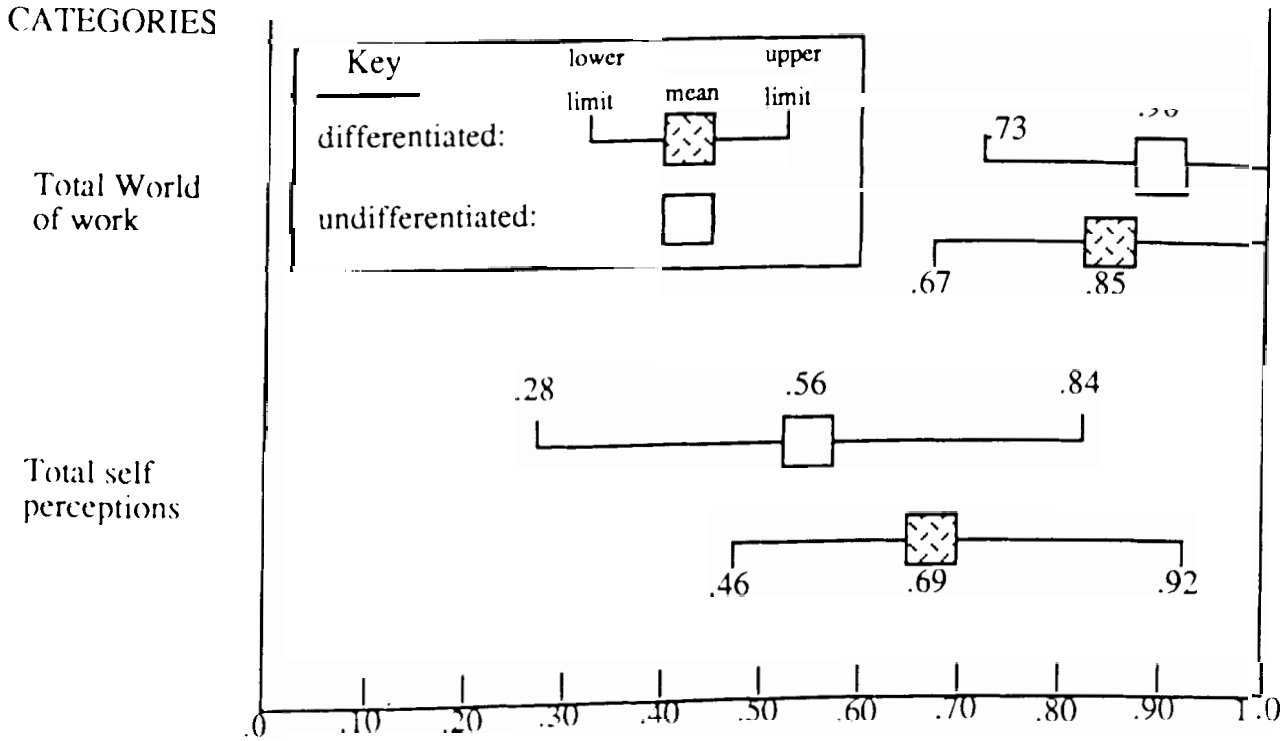
Figure 15 shows the standard error confidence intervals for the totals for each category for both differentiated and undifferentiated groups. Visual inspection of the figure reveals no difference between the undifferentiated and differentiated groups. There are also no apparent differences between the two categories.

Table 10

Standard Error Confidence Intervals of the Proportion Congruent for Differentiated and Undifferentiated Groups

	Differentiated n=9		Undifferentiated n=11	
	$\overline{X}$	S.E.	$\overline{X}$	S.E.
Total World of Work	.85	.18	.90	.17
Total Self Perceptions	.69	.23	.56	.28

Figure 15. Standard Error Bands of the Proportion Congruent for Differentiated and Undifferentiated Groups



Summary

Questions #1 & 2. Are workers more accurate about some areas of the world of work than others? Are workers more accurate about some areas of self perception than others? Tables 5 and 7 show that although workers give justifications which relate to more sub-categories when they dislike jobs than when they like jobs, their appraisals of the job for which they gave the most justifications are not necessarily most accurate. Overall, workers are more accurate in their appraisals about the world of work than in their appraisals about their abilities. Standard error confidence bands suggest that the degree of accuracy does not vary depending on whether jobs are liked or disliked. In the category of world of work, workers are most accurate about environmental conditions and the overall personality of the job (Holland codes) when they like jobs, and overall personality of the job and physical demands when they dislike jobs (Table 8). In the category of self perceptions, workers are most accurate about their educational level regardless of whether they like or dislike job titles (Table 8).

Examination of the data inferentially utilizing standard error confidence intervals reveals a trend toward differences between: Holland code and job duties, strength, educational level, physical ability, and between physical demands and strength, and job duties. Those differences which include the strength sub-category are suspect.

Question#3. Are workers' appraisals of their physical ability congruent with the medical report? Of the self perception sub-categories, the sub-categories which are measures of physical capability are strength and physical ability. The medical report contained information regarding both

these sub-categories. The sums in Table 6 under the category of self perceptions, show that workers give very few accurate justifications regarding their strength and physical ability. Tables 5 and 6 in the self perceptions category show that the total number of justifications given regarding the two categories of strength and physical ability were also few. Therefore, all results pertaining to self perception must be interpreted with caution. Although the number of justifications regarding physical ability are few, workers were approximately 70% accurate in their appraisals about their physical abilities.

Examination of the standard error bands (Figure 14) revealed a trend of slight differences between physical ability and Holland codes, and strength and Holland codes, physical demands, and environmental conditions.

Question#4 . Does having experience in the job affect personal interest decisions? Table 9 suggests that workers who have experience in a task related to a job title tend to like that job. By far, most of the justifications given in the Experience in the task category are justifications which are in the Like/Have combination. Workers did not say that they liked jobs when they had no experience in tasks related to them. The data are not sufficient to answer the question of whether workers dislike jobs for which they have no experience. However, the data do suggest that workers prefer jobs in which they have experience . The standard error bands (Figure 12) also suggest a trend in this direction .

Question#5 Does the inventory list a sufficient number of jobs which physically disabled people can adequately perform?

Each participant's physical capabilities as assessed by the participant's physician was compared to the physical demands and environmental demands of each job title. The participant's highest achieved educational level was also compared to the educational requirements of the job title in order to see if they had adequate schooling for the job. The total number of job titles on the CAI which the participants were physically capable of doing were totalled. Out of a possible 2220 total job title choices (111 job titles x 20 participants), the group was only physically capable of performing 237. This figure amounts to 10.7%, or an average of 12 jobs per person.

A CAVES (Computer Assisted Vocational Exploration Systems) program was run on each of the participant's physical capabilities taking into account their educational level in order to see how many jobs this group could perform in the general Canadian job market. Out of 144,000 (7200 x 20) total possible jobs, this group could perform 17,126 jobs or 12%. This is an average of 856 jobs per person. It would appear that the stimuli offered by the CAI is representative of the general job market in terms of the percentage of jobs workers can do. This still begs the question of the value of the CAI as a stimulus to generate job options when workers are capable of performing only about 11 percent of the job titles.

Chapter IV

Discussion and Conclusion

This chapter discusses the findings of the study, relates them to the literature review, and notes possible limitations of the study. The chapter begins with a review of the purpose of the study.

The Purpose of the Present Study

The purpose of this study was to contribute to the limited literature on the psychology of vocational rehabilitation of older disabled workers in order to assist counsellors in the development of rehabilitation counselling strategies for this group.

Sheppard (1987) found that this group utilized self appraisal as a basis for making decisions regarding vocational interests. The present study asked the question, Are these appraisals accurate? The justifications participants gave were reanalyzed using different criteria than Sheppard in order to examine how knowledgeable workers were about the world of work and about their own abilities. It is important to note that Sheppard analyzed the participants' justifications according to Strohmer's (1979) categories of decision making problems, i.e.. employment readiness, self appraisal, and decision making readiness. The present study analyzed the justifications according to different criteria than these, i.e. CCDO and medical reports, in order to evaluate the accuracy of the justifications given. The question of how accurate these workers are in their appraisals of work and their abilities is important to ask because the answers which arise from this question have clinical implications.

There are virtually no research data describing characteristics of older disabled workers, yet this group has been counselled using strategies designed to be effective with a younger employable population. One such counselling strategy is the use of interest inventories in generating potential job options.

One stimulus which prompted investigation into the decision making processes of older disabled workers was the high incidence of undifferentiated interest inventory profiles obtained when the CAI was used with this group. A counselling problem with older disabled workers is that the inventories do not differentiate occupational options for these physically disabled workers who come to counselling because they can no longer work in their chosen occupation.

If more were known about the decision making processes of this group, better counselling strategies could be devised which may reduce the incidence of undifferentiated profiles by better preparing this group prior to the administration of the CAI. This study was designed with the expectation that the results would show that these workers were inaccurate in their appraisals regarding work and their own abilities, and that this may be a possible explanation for their undifferentiated profiles on the CAI. If these results bore out, educating older disabled workers in the appropriate areas (e.g. job duties, physical abilities, physical demands of the job etc.) prior to administration of the inventory would have been a potential recommendation.

The results of this study were unexpected. The group was in fact quite accurate in their justifications regarding the world or work. These findings

are contrary to previously documented concerns that rehabilitation clients in general have a poor knowledge of the world of work (Williams, 1981). The findings of this study suggest that additional education about jobs prior to inventory administration may not be necessary. The accuracy of workers' appraisals about their own abilities was relatively lower than the accuracy of their knowledge about the world of work, but this result must be interpreted with caution as there were very little data in the sub-categories concerning self perceptions.

The fact that participants had very little to say about their own physical abilities is in itself surprising. It was expected that a large number of the justifications given for appraising job titles would be in this category, as all participants were prevented from continuing in their jobs due to a physical disability. This finding regarding physical ability and strength however, relates to previous literature suggesting that vocational clients in general may not be accurate in their appraisals of their abilities (Booth & Dumas, 1983; Dunn, 1981; Parnes & King, 1977). The low number of justifications in the category of self perceptions requires further study. The data do not suggest that additional client education prior to the administration of the CAI (and other similar inventories) is warranted. The problems which underlie undifferentiated profiles appear to be related to factors other than knowledge about work and self. A discussion of the findings and how they relate to the use of the CAI with the group of older disabled workers is presented below.

CAI Validity

It was mentioned earlier in the chapter that one of the motivating forces behind investigation of the accuracy of appraisals used by older disabled

workers was the frequent occurrence of undifferentiated interest inventory profiles in this group of men. The use of interest inventories has been suggested as a first step in the counselling process (Johansson, 1982; Phillips, 1978; Roessler & Bolton, 1985) and the CAI has been touted as being a means of eliciting valid and reliable information about interests (Johansson, 1982). Undifferentiated profiles have been discussed in the literature and suggestions to help remedy the problem after it occurs have been made (Dolliver, 1969; Pinkney, 1985; Slaney & Slaney, 1981; Williams, 1981), that is, the use of the vocational card sort. However, little had been said about the validity of the CAI with older disabled workers, and one of the possible reasons for obtaining undifferentiated profiles may be due to the inventory being standardized on a younger, nondisabled population. Factors which leave the inventory suspect for use with older disabled workers are presented below.

The question of the validity of the CAI with an older and disabled group of people becomes evident following examination of the manual. Johansson's case for using the CAI is that it provides "accurate information", is cost effective and time saving, and can be administered to groups. He argues that information gained through an interview (expressed interest) is not as valid as that obtained through the use of an inventory (measured interest). He proposes that expressed interests can be biased by many factors, i.e. family pressures to stay in the family business or profession, admiration for a person in a certain occupation, or an occupation which features prominently in the media at a particular point in time. He contrasts these expressed interests with measured interests obtained through inventories such as the

CAI, discounting the presence of bias, and implying that well researched and standardized items are immune from the aforementioned biases.

Given Johansson's stand regarding the validity of the CAI, it follows that the inventory could be used as an initial step in the counselling process. Once interest preferences are known with a certain degree of confidence, aptitudes and abilities could be added to help clients develop pictures of themselves. As this picture is formed, the counsellor can then begin to explore the world of work with the client and assist them in integrating the picture they have of themselves with a picture of the world of work. One cannot fault Johansson's rationale once the initial assumption of validity of the tool is made. However, if the initial assumption of validity is found to be faulty, the argument which follows may change.

Is the CAI a valid instrument to use with a population which is older and disabled? Johansson makes no reference to this specific population when outlining the appropriate uses for the tool. Adults considering a mid-career change or those with little formal education are targeted by Johansson as appropriate subjects for this instrument. He makes no reference to the group of adults who have been prevented by working in their chosen career because of a physical disability. Gellman and Soloff (1976) in their review of vocational inventories stress the importance of having norms available for the appropriate age range, educational level, and on the specific client population tested.

Is there a difference between a population who actively choses to leave a job and one who is forced to do so? The literature on retirement would support the notion that there may be differences between groups where there

is this difference of choice. The loss of the work role due to retirement is said to have deleterious effects on feelings of self worth (Simpson & Mckinney,1966) as well as on perceived status in the community (Myers, 1983). The loss of work role due to physical disability may have similar effects. There is evidence in the literature to indicate that older workers are pessimistic toward the job duties on the CAI (Dunn, 1981), and that they suffer from low self confidence (Williams, 1981; Parnes & King, 1977; Dunn, 1981) and lack initiative to change to new work (Dunn, 1981). Disabled workers are said to express pessimism about their own potential (Rubin & Roessler, 1978). These psychological factors may play a role in biasing inventory results obtained from a group for which the inventory was not standardized.

The CAI has not been standardized for this specific population, and I propose that the initial assumption of the inventory having validity for an older disabled population is in question, as are the steps in the counselling process that follow. The CAI may prove to be a useful tool for this population, but not necessarily as an initial step.

The present study supports previous findings that high experience in realistic jobs correlates with high interest in those occupational areas (Slaney and Slaney, 1981). The participants in the present study all had long work histories in realistic jobs, and their high interest area on the CAI was identified as being realistic. In addition, the present study showed that the participants preferred jobs in which they were experienced. Although inconclusive, the findings support the thesis that being experienced in particular jobs may bias inventory results standardized on a largely non-

experienced population. Since life experience and work experience can be viewed as a function of time, older workers generally have more experience in the world of work than do younger workers, and it would appear as though this experience may invalidate the options generated by the inventory for the former group.

The other finding of the present study which questions the validity of using the CAI with an older disabled population is that the workers as a group were only capable of performing 11% of the 111 jobs listed on the occupations section of the CAI. A CAVES analysis indicates that this percentage of jobs is accurate in terms of what these workers can do. It is generally accepted in clinical practise that the purpose of the inventory is not specifically to identify jobs for the client, but to assist the counsellor in identifying general job themes and categories to explore with the client. Nevertheless, a strategy of asking a client about his interest in a very large number of jobs he cannot physically perform when the client may already have a pessimistic attitude, be unmotivated to change jobs, and suffer from low self confidence may be counter-productive. Even though the intention behind the use of the inventory is not job placement, it was apparent from listening to the audiotapes of the participants' interviews that some of the participants considered the job titles as being alternative employment possibilities when they were justifying their preferences.

In summary, the appropriateness of the CAI for this population is questioned given that it has not been standardized for the population of older disabled workers, that it has few jobs which these workers could actually physically perform and that a little less than half of this group obtained

undifferentiated interest inventory profiles. Undifferentiated profiles may hinder the counselling process by frustrating both client and counsellor with a lack of information, give the client the impression that counselling is of little use, and reinforce the notion that there are no vocational opportunities available to the client who may already be pessimistic and feeling hopeless about his vocational options. If the main purpose of administering an inventory is to assist disabled workers in realizing that there are jobs which they can do, then it may be useful to administer an inventory which is weighted heavily toward jobs which can be performed by older disabled, blue collar workers having a low educational level.

Decision Making

Sheppard's study, as well as the present reanalysis of Sheppard's data was based on the assumption that people make rational decisions based on the information they collect (Gellatt & Clark, 1967; Pitz & Harren, 1980). If counsellors adopt this assumption, then it is reasonable to assume that an appropriate counselling strategy to assist in decision making is to provide clients with information pertaining to the decision in question. Traditional cognitive theory is related to this assumption, i.e. that how we feel (affect) is the result of what we think (cognition), and that we can change how we feel by changing how we think.

Zajonc (1980) claims that there are no effective verbal means to communicate why we like people, objects or situations, or what it is we like about them. He contends that this is because our cognitions are laden with affect. For instance, we don't just read **an** article, we read an **interesting** article. We don't just have **a** job, we have a **boring** job, or a **demanding**

job. Affect and the information associated with it is thought to be acquired, organized, categorized, represented and retrieved differently than purely verbal information. He speculates that this processing of affect is closer to the acquisition and retention of motor skills than it is to that of word lists, and that affect may not always be transformed into semantic content but is encoded in visceral or muscular symbols. The result of this encoding is that we just know what we like and do not like, without being aware of the reasons behind this knowing.

Affective reactions are difficult to verbalize (Zajonc, 1980), and the reasons given for liking or disliking a person, object or situation tend to be descriptions of our reactions to people, objects, or situations rather than descriptions of these people, objects or situations. For example, when meeting a stranger for the first time, one may be attracted to him or her. If asked why we like this person, our response may be "because he is nice, interesting or pleasant". Zajonc argues that the adjectives "nice, interesting and pleasant" in this instance refer more to us than to the person we are attempting to describe, that is, we experienced a "nice, interesting or pleasant" reaction when we met the stranger. The workers in this study used many such justifications to describe the jobs they either liked or disliked e.g. "interesting job, good trade, challenging". It may be the case that these men were making their decisions based on affective rather than on cognitive information. Zajonc suggests that affect may play a more important role in decision making than we are willing to admit, and that it is seldom the case that we evaluate pros and cons and make a purely rational decision. Sometimes merely liking a situation or object is sufficient for us to make a

decision, and the information we collect in the process serves to justify the decision after it is made.

The present study suggests that workers prefer jobs in which they have had experience. In addition to supporting Slaney and Slaney's work (1981) as previously noted in this chapter, the present findings also support Zajonc's (1980) theory that people show an increasing preference for objects due to mere repeated exposure to them. This implies that, among other reasons, we like things because they are familiar.

What if the underlying assumption of rational decision making in Sheppard's study, as well as the present study is invalid? What if, as Zajonc proposes, people do not make rational decisions based on weighing the pros and cons? The workers in this study were required to make preference choices of jobs utilizing the card sort, then to indicate their reasons for their choices. This task could be seen as being composed of two separate tasks involving two decision making processes, rather than one fluid process. That is, the required preference choice utilizing the card sort could have been made purely on a visceral reaction, as Zajonc poses that this is one of the sites where affect is encoded, with little attention paid to cognition. This is not that unreasonable as the Strong Campbell Interest Inventory instructs the user to work quickly using one's "gut reaction" in chosing the items, and not to spend too much time thinking about the items. This instruction however, was not given to the participants prior to the card sort. When asked "why"? by the researcher, the participants used a reasoning process to justify their choice preferences. The large number of uncodeable justifications in the present study which were affect laden, suggest that this group of participants

may have had difficulty supplying justifications for preference decisions which may have been based affective reactions rather than on cognitive reasoning. It may be the case that not all of the justifications gleaned from this group were involved in the initial rational process of deciding preferences.

Clinical Implications

Researchers have suggested that counselling goals must transform from a concentrated work orientation through to part-time work, leisure time management, and independent living as the population one works with moves through the aging process (Bozarth, 1981; Myers, 1983). The results of this study combined with previous literature suggest that there is a need for an inventory which contains jobs which are sedentary, require minimal education (e.g. $\leq$ grade 12) and can be easily performed on a part-time basis in order to accommodate those individuals who are older, disabled and no longer physically capable of full-time, physically demanding employment. It strikes me that counselling older workers, particularly those who became disabled during the course of their career, is much more involved than the mere assessment of aptitudes and interests and recommendation of occupational choices. A focus on attitudinal change during the counselling process with older workers is suggested in the literature (Bozarth, 1981; Dunn,1981; Myers, 1983; Odell, 1955; Sobel, 1966). In addition to focussing on attitudinal changes, the counselling process may require counsellors to provide emotional support to their clients in order to assist them to move through the aging process and better cope with their physical disability.

In summary, rather than educating clients so that they may better conform to the inventory items, I suggest that a new inventory be designed, one which contains items weighted heavily toward the occupational needs of the disabled aging in mind, and one which is standardized for this specific population. Using interest inventories as a first step, as suggested by some researchers (Johansson, 1982; Phillips, 1978; Roessler & Bolton, 1985), may have limited usefulness with older disabled workers if undifferentiated profiles are obtained, and may actually hinder the counselling process.

Interest inventories have traditionally been used in the initial phase of the counselling process to generate career choices because they have been seen as being a more "accurate" means of eliciting interests than interviewing. Given that the clients that counsellors have traditionally worked with have been young and employable, and that the inventories have been standardized for this population, it seems reasonable to use interest inventories as tools with this group of people. However, the client population has changed over time, yet the old measurement tools are still being applied to the new group without restandardizing the instrument, or creating new ones. Johansson claims that the interests measured by the CAI are more accurate than expressed interests, and that the CAI should be used as a first step in the counselling process. However, I question the use of the CAI with an older disabled group of people, particularly if the incidence of undifferentiated profiles is as high as suggested by Sheppard's study (1987). Counsellors may need to utilize a different strategy with this group of people. The answer to sorting out the problem of undifferentiated profiles may lie in appropriate

standardization of the interest inventory for the population with which it is used and in more careful screening of the clients for whom it is used.

Limitations of the Study

There are several limitations with the design of this study. First, the interviews on which the data for his study were based were conducted for Sheppard's purposes and not my own, therefore a great deal of time and effort went into coding the data into useable form for purposes of the present study. In retrospect, it would have been preferable to design interview questions geared specifically for eliciting information regarding the worker's knowledge of the world of work and their abilities, rather than retrieve this information post hoc. However, at the conception of this study it was believed that the justifications given would be sufficient for my purposes, and that using the same group and their justifications would allow for a direct analysis of the accuracy of justifications involved in the vocational decision making process of this group, leading to greater generalizability of the results, than would have had a separate group of participants been used. Second, the sample size was small, and third, the group proved to be less communicative about their justifications than I would have liked, resulting in a small number of total justifications which were codeable in terms of the study criteria. A larger sample size would have been preferable, however the costs of collecting such a sample were prohibitable considering the resources available for this study.

Explanation of the Findings

There were two findings in the study which were unexpected. These were: the generally high accuracy rate among participants regarding the world of

work, and the paucity of justifications regarding their own abilities. Possible explanations for these two findings are discussed below.

Knowledge of the job. It is surprising to find that workers are relatively accurate regarding the world of work. I hypothesized that the high negative response to the CAI may in part be due to workers having a poor knowledge of jobs presented to them. The results do not substantiate this hypothesis. The results are also contrary to previous suggestions made in the literature that vocational rehabilitation clients have a poor knowledge of the world of work (Williams, 1981). The high accuracy rate may in part be due to the selection of jobs used by the CAI, as the inventory is intended for use with blue collar workers. Workers may be less knowledgeable about jobs considered to be "professional".

The coding procedure used in the present study may also contribute to the fairly high degree of accuracy shown among workers. Participants were required to accurately identify only one characteristic of a job in order to be accurate about the general sub-category of a job title. For example, the justification, "too many hassles with the public" would be sufficient to code a temperament of "dealing with the public". The job may have three other temperaments which are important to it however, the participants were not penalized for omitting them as they were not instructed prior to the interview to say everything they knew about the job titles. A more rigorous examination of their knowledge of job titles may reveal that these workers are less accurate than what the present study reports.

Another explanation for the high knowledge of the job may be due to the fact that the data are based on a subsample of job titles. That is, that the data

for knowledge of the job, (and for all categories) is based on the job titles which the participants either liked or disliked and not the job titles for which they were indifferent. Recall that the number of indifferent responses was high for this group, and that the indifferent as well as the dislike responses were responsible for the undifferentiated profiles. The justifications which were measured for accuracy, then, were justifications for job titles the participants selected to respond to based on their likes or dislikes.

Self appraisal. The other unexpected finding in this study is that workers had very little to say about their personal abilities. Overall, the participants had at least six times more to say about the characteristics of jobs than they had about their abilities to do the jobs (Table 5-%). Of the justifications given in this category, workers were least accurate about their strength and physical abilities. This result supports previous literature which reports that vocational counselling clients in general may not be accurate in their appraisals of their abilities (Booth & Dumas, 1983; Dunn, 1981; Parnes & King, 1977; Rubin & Roessler, 1978). The finding that participants had few justifications regarding their physical ability is surprising because the participants all had physical disabilities which interfered with their ability to perform their usual jobs, and because after their injury, they have had to deal with numerous professionals such as :medical specialists, pension plan workers, physicians, chiropractors and so forth, whose focus would have been on examining the participant's physical functioning. Rubin and Roessler (1978) cite evidence of there being a strong relationship between physical strength and occupational potential using Appalachian coal miners as an example. They suggest that workers in physically demanding jobs tend to

"overreact to disability" and to exaggerate its occupational significance" (Rubin & Roessler, 1978, p. 117), and to use their physical limitations as an excuse not to return to work. The present findings are even more surprising in light of the previous literature presented above. Workers' appraisals regarding strength are not very accurate (Tables 7 and 8) when compared to the physician's assessment. Whether these appraisals were overestimations or underestimations was not revealed due to the nature of the coding procedure. Interpretation of this result must be done cautiously as there were few data in this sub-category. Appraisal regarding physical ability were more accurate than strength yet there were no statistically significant findings regarding this sub-category.

Why did workers not talk about their physical abilities? A reason for this may be due to the fact that they completed the CAI prior to doing the card sort and interview. The CAI, as do most interest inventories, instructs the client to disregard personal ability when deciding on preference for the items. Although the participants in this study were not given this instruction during administration of the card sort, some of them may have remembered these instructions from the CAI and used them as one of their unspoken decision making rules for the card sort.

Eighteen percent (Table 4: 307÷ 307 + 1443) of the justifications given for liking or disliking a job were not codeable because they were too vague to be coded using the criteria in the study. Examples of such justifications are as follows: " Just not interested, not my bag, women's work, a good trade, no patience." At first glance, one may assume that this group of workers is simply not introspective and verbally adept, and that they have difficulty

expressing themselves because of their low educational level, and the hands-on nature of their jobs. However, these workers may have been given a task which is difficult to do and one for which they are ill prepared. The task of a vocational card sort (i.e. justifying preferences) is a cognitive task designed to elicit the information on which the client is using to base his decisions regarding vocational choice. The vocational card sort is recommended by some as a remedy for the CAI which on occasion produces undifferentiated interest profiles. However, if Zajonc is right, and preferences are not cognitive processes, then we as counsellors are asking clients to make cognitive justifications for phenomena that are not cognitive, and this expectation may prove to be counter-productive to the counselling process.

Another explanation for the high number of uncodeable justifications may be attributed to the CCDO. The CCDO criteria for the sub-categories may have been too narrow in order to code many of the justifications given. There is little room in the CCDO sub-categories for affect laden justification.

Experience in the task. The present study suggests that workers prefer jobs they have had experience in. This finding relates to Zajonc's theory (1980) that people show an increasing preference for objects due to mere repeated exposure to them. This finding has implications for the use of interest inventories with people experienced in the world of work. It has been documented in the literature that Realistic experience may bias inventory results by indicating a strong preference in Realistic occupations (Slaney & Slaney, 1981). This study adds support to that speculation.

To conclude, the results of this study suggest that older disabled workers are accurate appraisers of the world of work. There is also a trend toward

workers preferring jobs in which they have had experience. Workers gave few justifications regarding their personal abilities, and the accuracy of their justifications regarding strength was low. Yet they were relatively accurate in their perceptions of their physical abilities and their educational level. These findings do not illuminate the reason for the problem of undifferentiated profiles in the group of men. However, they do raise questions regarding clinical implications for this group and provide direction for future study. More in-depth research into the following four areas is required:

1. Accuracy of older disabled workers' perceptions of the world of work and their own abilities, comparing those with differentiated and undifferentiated profiles.
2. Standardization of the CAI for older disabled workers.
3. Exploration of the role of affect in vocational decision making.
4. A new interest inventory heavily weighted toward jobs this group could physically perform given their educational level.

It is anticipated that future research regarding the vocational rehabilitation needs of older disabled workers will produce effective vocational rehabilitation strategies tailored for older workers who are experienced, moving through the aging process and are physically disabled. In the mean time, I urge counsellors to see with new eyes the problems older vocational rehabilitation clients face, and to begin to deviate from the tried and true strategies which may have become widely employed in the vocational rehabilitation field.

Appendix 1.

Example From Master Data Sheet

MASTER DATA SHEET

JOB TITLE	CCDO NUMBER	HOLLAND CODE			EDUCATIONAL LEVEL	ENVIRONMENT CONDITIONS							PHYSICAL DEMANDS								TEMPERAMENTS											
		R	I	A	S	E	C			In/Outdoor/Both	Cold	Heat	Wet/Humid	Noise/Vibration	Hazards	Fumes/Dust/Odor	Strength (SLMHV)	Climb/Balance	Stoop/Bend	Reach/Handle	Speech	Hearing	Vision	Varied Duty/Change	Short Cycle/Repetition	Close Instructions	Control Over Task	Dealing With People	Influencing Others	Working Alone	Stress/Risk Taking	Subj. Evaluation Info.	Obj. Evaluation of Info.	Interpret Feelings	Meet Precise Standards
						1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	0	X	Y
Actor	3335-110	A	I	S	5	I							L				✓	✓		✓				✓				✓		✓		
Airline Steward	6145-118	E	S	A	3	I							L	✓	✓		✓	✓	✓					✓				✓				
Apartment Manager	6130-110	E	S	C	4	I							L					✓	✓				✓	✓				✓				
Architect	2145-110	A	I	R	6	B							S				✓						✓	✓				✓		✓	✓	
Art Dealer	5174-110	E	S	A	4	I							L					✓	✓				✓					✓				
Auto Racer	3713-112	S	R	E	3	O				✓	✓	✓	M				✓						✓						✓			
Bank Cashier	4135-194	C	I	E	4	I							S				✓	✓					✓						✓			
Barber	6143-114	R	S	E	3	I							L				✓						✓					✓				
Bartender	6123-110	S	E	C	3	I							L				✓								✓			✓				
Bill Collector	4191-110	R	S	C	3	B							L					✓	✓				✓					✓				
Biologist	2135-244	I	R	C	4	B						✓	M				✓						✓								✓	
Book Keeper	4131-114	C	S	E	4	I							S				✓						✓								✓	
Bricklayer	8782-110	R	C	S	4	B						✓	H	✓	✓		✓						✓								✓	
Bus Driver	9171-110	R	C	S	4	I				✓	✓		M				✓	✓	✓	✓				✓							✓	
Butcher	8215-110	R	S	E	3	I			✓		✓	✓	H								✓										✓	
Cabinet Maker	8541-110	R	A	I	4	I				✓		✓	M				✓			✓				✓							✓	
Camp Counsellor	2333-126	S	E	A	4	O							S				✓	✓	✓	✓				✓			✓					
Carpenter	8781-110	R	C	I	4	B						✓	M	✓	✓		✓						✓								✓	

Note. example shows only 19 of the 111 job titles

Appendix 2.

<u>Example of: Physical Abilities Template</u>

Participant # 011

	HOLLAND CODE (R I A S E C)			EDUCATIONAL LEVEL	ENVIRONMENT CONDITIONS							PHYSICAL DEMANDS							TEMPERAMENTS											
					In/Outdoor/Both	Cold	Heat	Wet/Humid	Noise/Vibration	Hazards	Fumes/Dust/Odor	Strength (SLMHV)	Climb/Balance	Stoop/Bend	Reach/Handle	Speech	Hearing	Vision	Varied Duty/Change	Short Cycle/Repetition	Close Instructions	Control Over Task	Dealing With People	Influencing Others	Working Alone	Stress/Risk Taking	Subj. Evaluation Info.	Obj. Evaluation of Info.	Interpret Feelings	Meet Precise Standards
					1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	0	X	Y
Pre-injury	R	I	E	3	B				✓	✓	✓	H	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓		✓
Medical Report					B	✓	✓	✓	✓	✓	✓	M	✓		✓	✓		✓												

Appendix 3.

Example of: Participant's Score sheet

Participant's Score sheet

Participant # 011

Job Title	JOB NUMBER	Knowledge of the Job							Self Perceptions				Others	
		Like/Dislike/ Indifference	Holland Codes	Temperaments	Physical Demands	Environmental Conditions	Job Duties		Physical Ability	Physical Strength	Educational Level		Experience in The Task	Objective Ability To Do The Job
Actor	1	2	1											2
Airline Steward	2													2
Apartment Manager	3	2		1										2
Architect	4	2	1											2
Art Dealer	5	2	1											2
Auto Racer	6	2		1		1								2
Bank Cashier	7	2												1
Barber	8	2	2											2
Bartender	9													2
Bill Collector	10	2					1							2
Biologist	11	1				1								2
Book Keeper	12	2												1
Bricklayer	13	2			1									2
Bus Driver	14	1												2
Butcher	15	2												2
Cabinet Maker	16	2	1											2
Camp Counsellor	17	2					1							2
Carpenter	18	1	1											2
Cartoonist	19	2	1											1
Cattle Rancher	20	1												2

Note. example shows only 20 of the 111 jobs

Appendix 4

Sheppard's Sampling Procedure

The participants were selected from 125 clients referred by the disability plan between January 1985 and December 1986, and included both cases which were still being assessed and cases which were closed. A list of all cases was compiled, and then all clients who were under 40 years of age, or who resided outside the lower mainland of British Columbia were eliminated from the list. The remaining names on the list were reviewed by the consultant in charge of the referrals from the disability plan in order to eliminate those clients who had either died since the initial referral or who had expressed animosity toward the disability plan.

A total of 34 names remained at this point. All individuals were sent letters signed by the consultant briefly describing the purpose of the study, introducing the researcher and requesting participation. The potential participants were then contacted by phone and those willing to participate in the study were interviewed. Only 15 of the 34 individuals were available to be interviewed. The remaining people had either moved or simply could not be reached. Only one person refused to participate.

The design of Sheppard's study required a minimum of 20 participants, therefore five of the people on the initial list who lived outside of the lower mainland were added.

All participants were advised that participation was voluntary and that their participation would have no influence on their assessment and counselling with the firm, nor on their pension or disability benefits.

1590 Robertson Avenue
Port Coquitlam, B.C. V3B 1E1

August 26, 1988

The Vocational Consulting Group
#660 - 1665 West Broadway,
Vancouver, B. C. V6J 1X1

Dear Mr. G. Wallace:

As you are well aware, I am presently writing a Masters thesis in the area of Vocational Rehabilitation. The purpose of this letter is to request your permission to quote extensively from the CAVES operations manual and to make deletions or additions to said subject matter at my discretion.

The above mentioned citations will appear in my thesis and may appear in subsequent publications by me.

Thank you for your cooperation
Sincerely,

Teresa Akins

I Gordon Wallace agree to allow Teresa Akins to quote extensively from the CAVES operations manual and to make additions or deletions to the definitions contained within it at her discretion.

Signed _____ Date Sept 5/88

Witness _____ Date Sept 5/88

Appendix 6

Measures of Knowledge of the Job

Holland codes.

Realistic occupations involve explicit, ordered, or systematic manipulation of objects, tools or machines, and are not involved in educational or social activities. Realistic people like activities, jobs, and co-workers who represent such interest areas as nature and the outdoors; mechanical, construction, repair activities, and military activities. They are interested in action rather than thought, and prefer concrete problems to ambiguous, abstract problems. Examples of Realistic occupations include: Mechanic, Bus Driver, Carpenter, Fire fighter, Mail Carrier, Rancher, Printer, Painter, Sheet Metal Worker, Telephone Repairer, and Truck Driver.

Investigative occupations involve observational, symbolic, systematic and creative investigation of physical, biological, and cultural phenomena, in order that such phenomena be understood and controlled. Investigative people have a strong scientific orientation. They enjoy gathering information, uncovering facts or theories, and analyzing and interpreting data. They prefer to rely on themselves in their work rather than on others in a group project. Social and repetitive activities are not common in these types of occupations. The workers in these occupations usually acquire scientific and mathematical competencies. Examples of investigative occupations include: Biologist, Chemist, Chiropractor, Computer Programmer, Mathematician, Dental Hygienist, and Medical Lab Technologist.

Artistic occupations involve unsystematized activities that require the manipulation of physical, verbal or human materials to create art forms or products. They do not allow for explicit systematic and ordered activities. Artistic people value aesthetic qualities and have a great need for self-expression. They are usually talented in the areas of language, art, music, drama, and writing, and have little talent in clerical work or business activities. Examples of artistic occupations include: Art teacher, Advertising Writer, Architect, Interior Designer, Musician, Photographer, and Writer.

Social occupations involve dealing with people to inform, train, develop, cure, or enlighten them. These occupations are not conducive to activities involving the explicit, ordered systematic manipulation of materials, tools or machines. Social people, unlike the above three personality types, like to work with people. They enjoy working in groups, sharing responsibilities, and being the center of attention. They like to solve problems through discussions of feelings and interaction with others. Examples of Social occupations include: Elementary teacher, Special education teacher, Counsellor, Registered Nurse, Occupational Therapist, Religious Leader, and Child Care Assistant.

Enterprising occupations involve activities whereby the workers manipulate others to attain organizational goals or economic gain. These occupations don't allow for observational, symbolic and systematic activities. Enterprising people seek positions of leadership, power, and status. They enjoy working with other people toward organizational goals and economic success. They like to take financial and interpersonal risks and to participate in competitive activities. Examples of Enterprising occupations

include: Store Manager, Food Service Manager, Real Estate Agent, Hospital Administrator, Stock Broker, Auto Salesperson, Life Insurance Agent, and Sales Clerk.

Conventional occupations involve the explicit, ordered, and systematic manipulation of data, such as keeping records, filing materials, reproducing materials, organizing written and numerical data according to a prescribed plan, and operating business machines to achieve organizational or economic goals. Conventional people, like Enterprising people, work well in large organizations but they prefer subordinate roles rather than leadership positions. They especially like activities that require attention to detail and accuracy. Examples of Conventional occupations include: Accountant, Bookkeeper, Bank Teller, Court Reporter, Secretary, Data Input Operator, and Medical Office Assistant.

A classification system of only six types is likely insufficient for the wide diversity of either human personalities or work environments, and Holland expanded his classification to include combinations of the six types, using terms such as Realistic-Investigative, Artistic-Social, or Enterprising-Social-Conventional, depending on the relative strength of each theme in a given individual or work environment. In theory, using all possible combinations of the six themes, 720 classifications
can be established. In practice, the use of the most strongly manifested one, two, or three themes is sufficient for most vocational exploration purposes.
(Above descriptions of Holland codes taken from the CAVES operations manual, pp37-40 and The General Occupational Themes pp 9-11)

Temperaments

1. Variety and Change. This temperament refers to adaptability to performing a variety of duties, often changing from one task to another of a different nature without loss of efficiency or composure.
For example:
The worker supervises and coordinates the activities of workers engaged in operating machines and auxiliary equipment to make bottles and other glass containers as well as reviews production schedules, requisitions molds and parts, sets up machines, weighs, verifies dimensions of, and inspects bottles, and performs supervisory tasks.

2. Repetitive, Short Cycle. This temperament refers to adaptability to performing repetitive work, or to continuously performing the same work, according to set procedures, sequence, or pace. This factor should be considered when the work is performed according to a routine, or set sequence, and there is an absence of diversion.
For example:
The worker addresses cards, envelopes, advertising literature, packages, and similar items for mailing, by hand or using a typewriter.

3. Under Specific Instructions. This temperament refers to adaptability to performing work duties under specific instruction, allowing little or no room for independent action or judgement in working out job problems.
For example:
The worker threads strips of metal or wire through guide rollers.
The worker starts a machine and watches operation as the machine automatically performs the function for which it was designed.

4. Direction, Control, Planning. This temperament refers to adaptability to accepting responsibility for the direction, control, or planning of an activity.
For example:
The worker plans and designs private residences, office buildings, and other structures; and organizes services necessary for construction. (Responsible for the entire activity through planning and designing of structures and direction of construction activities through subordinate supervisors or independent building contractors.)

5. Dealing with People. This temperament refers to dealing with people beyond giving and receiving instructions.
For example:
The worker counsels clients on problems and gives advice to aid individuals and families having problems concerning family relationships or other aspects of their social functioning that affect unity of the family.

6. Isolation: This temperament refers to adaptability to work alone and apart in physical isolation from others, although the activity may be integrated with that of others.
For example:
The worker patrols oil and gas pipelines or communication systems alone on foot, horseback, or by mechanical means, to locate and repair leaks, breaks, washouts, and damaged equipment.

7. Influencing People. This temperament refers to adaptability to influencing people in their opinions, attitudes, or judgments about ideas or things.
For example:
The worker contacts individuals and firms by telephone, in person, or by other means to persuade them to contribute money and/or time to charitable organizations.

8. Performing Under Stress. This temperament refers to adaptability to performing under stress when confronted with emergency, critical, unusual, or dangerous situations; or in situations in which working speed and sustained attention are make or break aspects of the job.
For example:
The worker controls and extinguishes fires, protects life and property, and maintains equipment as a volunteer or employee of the city or industrial plant. When fighting fires in buildings, he must act quickly and effectively in order to gain access, and reduce the fire. He must be aware of toxic fumes and smoke, falling structures or debris, explosive and electrical hazards, and he must protect self and others from them in a calm, authoritative, and decisive manner.

9. Sensory or Judgmental Criteria. This temperament refers to adaptability to making generalizations, evaluations, or decisions based on sensory or judgmental criteria. Jobs are included in this factor when the worker relies on one or more of five physical senses, or relies on knowledge gained by experience to make evaluations.
For example:
The worker determines appropriate colours and colour combinations, according to room size, its exposure, and intended use, and available colours, patterns and textures, and advises clients in selection of draperies, floor coverings, paint and wallpaper.

0. Measurable or Verifiable Criteria. This temperament refers to adaptability to making generalizations, judgments, or decisions based on measurable or verifiable criteria. Jobs are included in this factor when the worker makes evaluations on the basis of data.
For example:
The worker studies body tissues, fluids, secretions, and other specimens, using laboratory tests and procedures, to determine presence and stage of diseases.

X. Interpretation of Ideas, Facts, Feelings. This temperament refers to adaptability to situations involving the interpretation of feelings, ideas, or facts in terms of personal viewpoint. Jobs are included in this factor when the worker is called upon to use creativity, self-expression, or imagination.
For example:
The worker creates advertising themes, designs layouts, and selects colours, colouring media, props and lighting arrangements for advertising displays.

Y. Precise Attainment of Set Limits, Tolerances, or Standards. This temperament refers to adaptability to situations requiring the precise attainment of set limits, tolerances, or standards. Jobs are included in this factor when the worker must be precise, thorough, exacting, or meticulous in regard to material worked or in activities such as numerical determinations, record preparation, or inspecting.
For example:
The worker prepares medicines and drugs as directed on the physician's or dentist's prescriptions for a specified customer's use.
(Above descriptions of temperaments taken from the CAVES operations manual, pp 41-45)

Physical Demands

1. Strength. This factor is measured by the involvement of a worker with one or more of the following activities:
(a) Lifting: Raising or lowering an object from one level to another (includes upward pulling).
(b) Carrying: Transporting an object, usually holding it in the hands or arms or on the shoulder.
(c) Pushing: Exerting force upon an object so that the object moves away from the force (includes slapping, striking, kicking, and treadle actions).
(d) Pulling: Exerting force upon an object so that the object moves toward the force (includes jerking).

The factor of Strength required for a particular job is assessed by examining the degree to which a worker is involved with the above mentioned activities. Strength is rated by the CCDO using a 5 point scale ranging from Sedentary to Very Heavy. Descriptions of each rating are presented below.

Sedentary. Lifting 10 pounds maximum and occasionally lifting and/or carrying such articles as dockets, ledgers, and small tools. Although a sedentary occupation is defined as one which involves sitting, a certain amount of walking and standing is often necessary in carrying out some duties. Occupations are sedentary if walking and standing are required only occasionally and other sedentary criteria are met.
For example:
The worker sits at a bench and inspects finished pieces of jewelry, or sits at a desk most of the day, takes dictation and transcribes it on a word processor; occasionally walks to various parts of the department.

Light Work. Lifting 20 pounds maximum with frequent lifting and /or carrying of objects weighing up to 10 pounds. Even though the weight lifted may be only a negligible amount, an occupation is in this category when: (a) it requires walking or standing to a significant degree, or (b) it involves sitting most of the time with a degree of pushing and pulling of arm and/or leg controls.
For example:
The worker lifts cans, jars, or bottles from cardboard carton and places them on a conveyor, or stands and walks behind the counter of a variety store all day wrapping and bagging articles for customers.

Medium Work: Lifting 50 pounds maximum with frequent lifting and/or carrying of objects weighing up to 20 pounds. Consideration of (b) under "light work" may apply here.
For example:
The worker fabricates articles and equipment out of sheet metal, occasionally carries tools and sheet metal weighing 50 pounds maximum to work bench, or the worker lifts, pushes, and pulls to jack up an automobile to remove the tire from the wheel, and to remount the tire onto the wheel.

Heavy Work (H): Lifting 100 pounds with frequent lifting and/or carrying of objects weighing up to 50 pounds.
For example:
The worker lifts and carries metal weighing 50-75 pounds to charge a furnace, or the worker pushes a hand truck up and down warehouse aisles, to fill orders, stooping and lifting cartons or items with average weight of 65 pounds and placing them on a truck.

Very Heavy Work (VH): Lifting objects in excess of 100 pounds with frequent lifting and/or carrying of objects weighing 50 pounds or more.
For example:
The worker loads and unloads truck when transporting of delivering articles, such as furniture, refrigerators, and machinery, many of which weigh in excess of 100 pounds.
The worker performs any or all machine and hand operations necessary to fabricate and assemble boilers, tanks, vats, and other vessels made of heavy steel plates weighing up to 120 pounds.

Other measures of physical demands of the job used in the present study are as follows:

2. Climbing and/or Balancing. For climbing, the emphasis is placed on body agility; for balancing it is placed upon body equilibrium.
-Climbing: Ascending or descending ladders, stairs, scaffolding, ramps, poles, ropes, and the like, using the feet and legs and/or hands and arms.
-Balancing: Maintaining body equilibrium to prevent falling when walking, standing, crouching, or running on narrow, slippery, or erratically moving surfaces; or maintaining body equilibrium when performing gymnastic feats.
For example:
The worker must continuously steady himself and maintain equilibrium on an erratically moving railroad dining car when serving meals to passengers.
The worker must climb poles to install, maintain, and repair telephone, telegraph, and electrical power lines. He must maintain equilibrium while at the top of the pole.

3. Stooping, Kneeling, Crouching, and/or Crawling. The activities in this factor involve full use of the lower extremities as well as the back muscles.
-Stooping: Bending the body downward and forward by bending the spine at the waist.
-Kneeling: Bending the legs at the knees to come to rest on the knee or knees.
-Crouching: Bending the body downward and forward by bending the legs and spine.

-Crawling: Moving about on the hands and knees or hands and feet.
Examples:
The worker must operate a concrete wall grinder to remove bumps and rough spots from exposed concrete surfaces, in a kneeling position for sustained periods of time when working on surfaces which are below waist level.
-The worker must continuously stoop and crouch to remove weeds from flowers or crops by hand or with a hoe.

4. Reaching, Handling, Fingering and/or Feeling. These activities involve the use of one or both of the upper extremities.
-Reaching: Extending the hands and arms in any direction.
-Handling: Seizing, holding, grasping, turning, or otherwise working with the hand or hands.
-Fingering: Picking, pinching, or otherwise working with the fingers primarily (rather than with the whole hand or arm as in handling).
-Feeling: Perceiving such attributes of objects and materials as size, shape, temperature, or texture, by means of receptors in the skin, particularly those of the finger tips.
Examples:
The worker must carry guests' heavy baggage to and from hotel rooms, unpack sample cases, and arrange their contents on racks or shelves in sample rooms using full and frequent reaching and handling arm-hand functions.
The worker must turn and regulate valves, pumps, and flow meters in the production of chemical solutions of specified strengths, requiring full use of arms and hands in rapid and frequent movement.

5. Talking. Expressing or exchanging ideas by means of the spoken word. Talking is important for those activities in which the individual must impart oral information to clients or to the public, and in those activities in which he must convey detailed or important instructions to other employees accurately, loudly, or quickly.
Examples:
The worker must give information over the telephone in answer to questions.
The worker must talk with patients concerning food, diets, and menus.

6. Hearing. Perceiving the nature of sounds by the ear. Hearing is important for those activities which require the ability to receive detailed information through oral communication, or to make fine discriminations in sound.
Examples:
The worker must receive oral information regarding the quantity of goods to be shipped.
The worker must listen to customer complaints so that appropriate solutions can be found.

7. Seeing. This is the ability to perceive the nature of objects by the eye. The important components of vision are:
-Acuity, Far: Clarity of vision at 20 feet or more.
-Acuity, Near: Clarity of vision at 20 inches or less.
-Depth Perception: Three-dimensional vision. The ability to judge distance and space relationships so as to see objects where and as they actually are.
-Accommodation: Adjustment of the lens of the eye to bring an object into focus. This component factor is especially important when doing near-point work at varying distances from the eye.
-Colour vision: The ability to identify and distinguish colours.

-Field of vision: The area that can be seen up and down, or to the right or left, while the eyes are fixed on a given point.
Examples:
The worker pilots an airplane to transport passengers, mail or freight.
The worker repairs and services office machines.
(Above definitions of physical demands taken from the CAVES operations manual pp 28-33)

Environmental Conditions

1. Work Location. I- Inside: The worker has protection from weather conditions but not necessarily from temperature changes. e.g. The worker assembles electric motors in an enclosed assembly area of an industrial plant, or performs clerical/secretarial work in an office building. O- Outside: The worker has no effective protection from the weather. e.g. The worker erects and repairs electrical power lines, or delivers mail to residential areas. B - Both: The worker is required to perform activities which are inside and outside in approximately equal amounts. e.g. The worker paints interiors and exteriors of residential and commercial structures; drives a delivery truck over an established route, and unloads deliveries at each stop.

2. Extremes of Cold Plus Temperature Changes. Example: The worker stores ice in a cold storage room, or works in a cooler room while cutting up beef carcasses into standard cuts.

3. Extremes of Heat Plus Temperature Changes. Example: The worker works close to a hot stove during the cooking preparation, or controls the movement of a machine which spreads hot asphalt on streets.

4. Wet and/or Humid. Example: The worker presses garments using a pressing machine and is constantly exposed to oppressive humidity, or loads damp articles into dry-cleaning plant dryers.

5. Noise and/or Vibration. Example: The worker operates a compressed-air, rock drilling machine, or operates heavy road building equipment and is subjected to intense vibration.

6. Hazards. The worker is exposed to conditions or situations in which there is danger to life, health, or bodily injury. This category includes a variety of physical hazards, such as proximity to moving mechanical parts, electrical shock, working on scaffolding and high places, exposure to burns and radiant energy, exposure to all types of explosives, and exposure to toxic chemical and biological agents
Example: The worker demolishes parts of buildings to reach and combat fire, or repairs energized electrical lines.

7. Atmospheric Conditions. This category includes any conditions that affect the respiratory system or the skin including fumes, odours, dusts, mists, gasses, and poor ventilation. Example: The worker stacks grain during harvesting and threshing and is exposed to heavy concentrations of dust, or controls a kettle to melt lead and is exposed to toxic fumes.
(Above definitions of environmental conditions taken from the CAVES operations manual, pp 26-27)

Appendix 7

Table of Job Titles and CCDO #s

Job Titles	CCDO #
Actor	3335-110
Airline Steward	6145-118
Apartment Manager	6130-110
Architect	2141-110
Art Dealer	5174-110
Auto Racer	3713-122
Bank Cashier	4135-194
Barber	6143-114
Bartender	6123-110
Bill Collector	4191-110
Biologist	2135-244
Bookkeeper	4131-114
Bricklayer	8782-110
Bus Driver	9171-110
Butcher	8215-110
Cabinet Maker	8541-110
Camp Counsellor	2333-126
Carpenter	8781-110
Cartoonist	3314-134
Cattle Rancher	7113-126
Cement Mason	8783-122
Check-out Clerk	5137-111
Director of Religious Choir	3332-126
Circus Performer	3339-162
Comedian	3335-122
Computer Operator	4143-110
Construction Worker	8798-114
Cook	6121-114
Court room Reporter	4111-114
Delivery Truck Driver	9175-138

Dog Trainer	3339-178
Driving Instructor	2797-146
Electrician	8733-122
Elementary School Teacher	2731-110
Farmer	7111-110
Fashion Designer	3313-134
Fashion Model	5199-126
Filing Clerk	4161-134
Fire fighter	6111-126
Fish and Game Warden	6119-110
Florist	3319-230
Forest Ranger	7511-110
Funeral Director	6141-110
Gas Station Attendant	5145-110
Hair Stylist	6143-118
Heavy Equipment Operator	8711-110
High School Counsellor	2391-118
High School Teacher	2733-110
Hospital Orderly	3135-114
Hospital Records Clerk	4161-110
Hotel Manager	1142-110
House Painter	8785-120
Interior Decorator	3313-114
Janitor	6191-110
Jeweler	8591-122
Labour Union Leader	1179-114
Legal Secretary	4111-112
Library Clerk	4161-118
Life Insurance Salesperson	5171-114
Logger	7513-122
Magician	3339-166
Mail Carrier	4172-110
Manager of Pet Store	7199-162
Marriage Counsellor	2399-122

Mechanic	8581-110
Medical Technician	3156-134
Military Officer	2143-140
Minister,Priest or Religious leader	2511-110
Missionary/Religious Ambassador	2511-110
Movie Projector Operator	9557-110
Musician	3332-130
Newspaper Reporter	3351-174
Nurse	3131-130
Nursery School Helper	2731-142
Nurse's Aide	3135-110
Photographer	3315-110
Playground Director	3715-130
Plumber	8791-114
Police Officer	6112-158
Postal Office Clerk	4173-126
Printer	9512-110
Private Detective	6113-114
Private Secretary	4111-110
Radio/T.V. Announcer	3337-114
Railroad Engineer	9131-110
Real Estate Salesperson	5172-118
Receptionist	4171-118
Recreation Leader	2333-122
Restaurant Cook	6121-114
Scout Troop Leader	2333-126
Sculptor	3311-114
Security Guard	6115-138
Sheet Metal Worker	8333-118
Short Order Cook	6121-130
Social Worker	2331-124
Stage Manager	3330-166
Stenographer	4111-118
Stock Room Clerk	4155-126

Supervisor	9170-118
Taxi Cab Driver	9173-110
Teacher's Aide	2799-122
Telephone Operator	4175-110
Ticket Agent	4133-130
Tour Guide	6144-110
Travel Bureau Agent	4193-110
Truck Driver	9175-110
Veterinarian Assistant	3159-186
Waiter	6125-126
Welder	8335-126
Wildlife Manager	6119-110
Zoo Attendant	7199-158

Vocational Consulting Group

Appendix 8a

February 15, 1989

Ms. Teresa Akins
1590 Robertson Avenue
Port Coquitlam, B.C.
V3B 1E1

To Whom it May Concern,

This letter is confirmation that The Vocational Consulting Group Inc. has given Teresa Akins permission to publish a copy of the Physical Capacities Assessment form in her thesis manuscript. We have also given permission for this to be used by the National Library System.

Should you have any questions, please do not hesitate to contact me at your convenience.

Yours sincerely,

THE VOCATIONAL CONSULTING GROUP INC.

Derek M. Nordin, M.Ed.
Vice-President

DN/dle
encl.

PHYSICAL CAPACITIES ASSESSMENT

Appendix 8

Client's Name: _____

Note to Physician: Based upon your examination of the client, please check (✓) all items within the client's physical capability/tolerance range. Additional space is provided for your comments as required.

I. PHYSICAL ACTIVITIES

1. Lifting

The most reasonable lifting and/or carrying expectation for this client is:

_____ over 100 lbs. occasionally to 50 - 100 lbs. frequently: _____
_____ 100 lbs. occasionally to 50 lbs. frequently: _____
_____ 50 lbs. occasionally to 25 lbs. frequently: _____
_____ 20 lbs. occasionally to 10 lbs. frequently: _____
_____ 10 lbs. maximum: _____

2. Climbing - Balancing

_____ Climbing (e.g. stairs, ladder): _____
_____ Balancing (e.g. scaffolding): _____

3. Stooping - Bending

_____ Stooping (e.g. bending at the waist): _____
_____ Kneeling (e.g. resting on knees): _____
_____ Crouching (e.g. bending the legs and spine): _____

4. Reaching - Handling

Reaching with the arms and hands: _____
Reaching with the legs (e.g. operating pedals): _____
_____ Handling (gross motor manipulation): _____
_____ Handling (fine motor manipulation): _____

5. Speech

_____ Talking: _____

6. Hearing

_____ No significant loss: _____
_____ Partial loss (specify): _____
_____ Deaf: _____

7. Vision

_____ No significant restrictions: _____
_____ Corrected vision (e.g. wears glasses): _____
_____ Partial loss (specify): _____
_____ Blind: _____

II. ENVIRONMENTAL CONDITIONS

1. Indoor - Outdoor Activities

_____ Both indoor and outdoor: _____
_____ Indoor only: _____
_____ Outdoor only: _____

2. Cold Tolerance

_____ Cold climate (e.g. 40° F or less): _____

3. Heat Tolerance

_____ Hot climate (e.g. 90° F or more): _____

4. Wetness/Humidity Tolerance

_____ Activity in wet/humid setting: _____

5. Noise - Vibrations

_____ High noise levels: _____

_____ Repeated jarring vibrations: _____

6. Occupational Hazards within Client's Tolerance Level

	Yes	No	
Moving Machinery:	_____	_____:	_____
Fixed Machinery:	_____	_____:	_____
Chemicals:	_____	_____:	_____
Explosives:	_____	_____:	_____
Electrical Devices:	_____	_____:	_____

7. Atmospheric Conditions within Client's Tolerance Level

	Yes	No	
Fumes:	_____	_____:	_____
Odours:	_____	_____:	_____
Dust:	_____	_____:	_____
Gases:	_____	_____:	_____

III. GENERAL PHYSICAL FUNCTIONING

1. Client can stand daily (with breaks) for:

_____ 8 hours _____ 2 hours
_____ 6 hours _____ 1 hour or less
_____ 4 hours _____ not at all

Comment: _____

2. Client can sit daily (with breaks) for:

_____ 8 hours _____ 2 hours
_____ 6 hours _____ 1 hour or less
_____ 4 hours _____ not at all

Comment: _____

3. Client can walk daily:

_____ No restrictions: _____
_____ 5 - 10 blocks: _____
_____ 2 - 4 blocks: _____
_____ 1 block or less: _____
_____ Not at all: _____

4. Stamina

The client can perform the physical activities listed on this form within the specified limitations for _____ hours per day.

Additional Comments: _____

Date: _____ Signature: _____

Appendix 9

CODE BOOK

TABLE OF CONTENTS

Appendix 9

CODE BOOK

The purpose of this code book is to assist the coder to transform the participants' verbal justifications to the job titles into codeable variable categories. The code book has four general parts: Knowledge of the job; Self Perceptions, Key words, and Additional categories. Each part contains sections which are headed with a category variable and provide rules and examples on coding for that particular variable.

The code book begins with a Key for coding and a general rule for "bringing forward justifications", which allows the coder to code an incomplete justification which would have been seen as complete if the coder referred to the justification given to the previous job title.

The numbers: 1, 2, and 0 are used for coding. However, each number has a different meaning depending on the category variable being coded. A key outling the interpretations of the numbers for the various variables is presented below.

KEY

1 = congruent
2 = not congruent
blank space = unable to code

Variables: Holland codes, temperaments, physical demands, environmental conditions, job duties, physical strength, educational level, and physical ability.

1 = Yes
2 = No

Variables: experience in the task, and objective ability to do the job.

1 = Like
2 = Dislike
0 = indifferent

Variable: participant's response

BRINGING FORWARD JUSTIFICATIONS

Due to the method of data gathering, the participants did not always make complete justifications to each job title. Often they clearly assumed that the interviewer understood that the contents of a previous justification applied to the current job title. Thus, it should be assumed that the interview is somewhat cumulative and statements made to prior job titles should be brought forward if the participant makes it clear that he intends this. For example: participant states, "That's the same as for farmer." In this case the coder would refer to the job title: Farmer, and code it's corresponding comment as though it was stated for the new job title.

If it is unclear which prior justification is being referenced, it is the most recent justification.which is coded. For example: participant states, " that's the same thing". In this case the coder would code the last job title commented on as being the same justification as for the new job title.

KNOWLEDGE OF THE JOB

LIKE/DISLIKE/INDIFFERENT

Like = 1 Dislike = 2 Indifferent = 0

If in doubt whether the participant liked, disliked or felt indifferent to the job title, check Sheppard's Occupations Check List for the participant. This is the ultimate authority.

HOLLAND CODES

Holland codes can be viewed as global terms referring to the overall personality or theme of a job.

If a participant defines the job using a global term which indicates that the job falls into a theme, check the master data sheet to see if it is a theme covered by a Holland code. The Holland code can be in any of the three positions listed in the CCDO in order to be coded as being present. For example, if the master data sheet indicates the job is "RIA", and the participant indicated that it was "Artistic" (A) then this justification would be coded as being congruent with the CCDO even though the "A" is in the third position.

Below are brief descriptions of the job themes and examples of acceptable keywords which allow this variable to be coded. Some variations of these keywords are acceptable, as long as the nature of the theme is clear and it is clear that the participant believes the job to be wholly within that theme.

HOLLAND CODE THEMES:

Realistic- these are "hands-on", action jobs which produce tangible results.
Keywords: "building, manufacturing, operating, running or working with machines, constructive, repairing"

Investigative- These are abstract, "mental" jobs which involve study, research and analysis.
Keywords: "scientific, laboratory"

Artistic- these are aesthetic jobs which involve participation in expressive mediums.
Keywords: **"artistic, creating, musical, performing, entertainment"**

Social - These are "helping" jobs which involve interacting with people in in-depth ways. [see also temperaments - people]
Keywords: **" helping, teaching, counselling, organizing people, training people, healing"**

Enterprising- These jobs involve increasing economic and personal status.
Keywords: **"selling, sales, management, executive"**

Conventional - These jobs generally involve subordinant roles in larger organizations and are concerned with attention to detail and accuracy.
Keywords: **"paperwork, writing and stuff...**("writing" alone is insufficient), an office job..("office" alone is insufficient)

*The key to identifying applicable keywords is that the participant must be referring to the job as a theme, or personality and not referring simply to a job duty or a single factor in the

environment. The reader is directed to Appendix 6 for a more in-depth explanation of Holland Codes.

TEMPERAMENTS

Temperaments are defined as, "those personality qualities which remain fairly constant and reveal a person's characteristic justification in terms of a preference, inclination or disposition" (CAVES manual). Temperament traits are evaluated through the use of twelve factors: Variety/Change; Repetitive; Short cycle; under specific instructions; Direction, control and planning; Dealing with people; Isolation; Influencing people; Performing under stress; Sensory or Judgemental criteria; Measurable or verifiable criteria; Interpretation of Ideas, facts, feelings; and Precise attainment of set limits, tolerances.

The above twelve factors are used by the CCDO and the CAVES program to rate the type of temperamental adjustment required of the worker in order to perform the job. For specific examples of coding, please refer to the section of this code book headed "Keywords", Coding "people" or "public".
For a more in-depth presentation of Temperaments, the reader is directed to Appendix 6.

PHYSICAL DEMANDS

Rule:

If the participant indicates a physical strength requirement of the job, check to see their appraisal is congruent with the Strength code (column 1 in Physical Demands) on the master data sheet for that job title. If the two are congruent, code "1" if they are not, code "2". It is unlikely that participant will use the same terms as the CCDO so a list of equivalent descriptions follows:

Sedentary = **"sitting", "sitting around"**
Light = **"lots of standing"**
Moderate - Very heavy = **"heavy", "tough job", "rough work"**

The justification: **"active"** is coded as being any demand other than sedentary (S). Therefore, if the CCDO indicates that the physical demand of the job to be >"S", and the participant responds that the job is "active", code the justification as being "1" congruent. If the CCDO indicates that the job is "S", and the participant rationalizes that the job is "active", then code "2", not congruent.

Examples:

Job title: Actor (CCDO Strength code is "L"ight)
Participant's justification: "too much sitting around"
Action: Code "2" for incongruent.

Since the participant's justification indicates sedentary physical demand and the job is identified as a light physical demand by the CCDO, the justification is coded as being incongruent.

Job title: Bricklayer (CCDO strength code is "H"eavy)
Participant's justification: "no that's a tough job"
Action: Code "1" for congruent.

Since the participant indicates heavy physical demand and the job is identified as having a heavy physical demand by the CCDO, the justification is coded as being congruent.

If the participant makes reference to a specific demand of the job e.g. "reach & handle", compare their medical report to the CCDO physical demand requirement to see if that activity is required.

Example:

Participant's justification: "no, my hands being the way they are, I can't"
Job title: Bricklayer: (requires reaching and handling)
Participant's condition: **cannot** reach and handle per Drs report on the physical ability template
Action: Code "1", congruent for physical demands, **AND** code "1" for congruency with the physician's report.

ENVIRONMENTAL CONDITIONS

The conditions used as justifications must be excessive in order to be coded, justifications such as **"dirty" or "smelly"**, do not qualify as codeable justifications. The

environmental conditions are fairly self explanatory, for a more in-depth explanation of all the environmental conditions, the reader is directed to Appendix 6.

JOB DUTIES

Rule:
Code "2" whenever the participant states that they don't know anything about the job. However, the reference must be clearly referring to the job title. For example,
Participant's justification: " I dont know anything about cooking".

VS.

Participant's justification: " I don't know about that"
This justification cannot be coded because it is not clear what the participant is referring to.

Rule:
If the participant mentions activities which are clearly implicit or or explicit in an aspect of a job, then it is a recognition of a job duty. If that job aspect is noted in the CCDO job description, then code "1", indicating congruency in job duties, otherwise code "2", indicating the comment was not congruent with the CCDO re: job duties.

Examples:

Participant's justification: "no, that's got to do with spelling"
Job title: Printer: **"looking for typographical errors"**
Action: code "1", congruent
The participant's justification matches an aspect of the CCDO job duty description.

Participant's justification: "no, that's got to do with spelling"
Job title: Checkout Clerk: **"spelling"** is not in the CCDO job description.
Action: code "2", not congruent
The participant's justification does not correspond with any aspect of the CCDO job description.

Rule:
If the participant states that a job activity is not represented or is a minimal component in a job and the job description conflicts with this judgement, code "2" in job duties.

Example:

Participant's justification: "it's not working with the animals"
Job title: Zoo Attendant: **" feeds, waters, and cares for animals and birds in zoo or similar establishment. Assists veterinarian ...to inoculate and treat sick and injured animals and birds."**
Action: Code "2", not congruent,
The participant's justification is in opposition to the CCDO job description.

Rule:
If the participant merely mimics the job title or a component of it, without providing any new information - Do not code, with the exception of "driving" for any of the driving jobs, e.g. Truck Driver. See Keyword section of this codebook.

Examples:

Job title: Elementary School Teacher
Participant's justification: "school"
Action: Do not code

Job title: Actor
Participant's justification: "acting"
Action: Do not code

Job title: Pet Store Manager
Participant's justification: " pets"
Action: Do not code

Rule:
If the participant notes a generic activity which is a major component of the job, (implicitly or explicitly described in at least 1/4 of the activities in the CCDO job description), code it as a job duty.

Examples:

Job title: Mail Carrier
Participant's justification: " too much walking"
Action: Code "1", congruent,
Because at least 1/4 of the job duty according to the CCDO requires walking.

Job title: Nursery School Teacher
Participant's justification: "too much talking"
Action: Code "1", congruent,
Because at least 1/4 of the job duty according to the CCDO requires speaking.

Job title: Gas station attendant
Participant's justification: "Too much public"
Action: Code "2," not congruent
Because this job is not described in the CCDO as a job which requires dealing with the public.

Rule:
References to interests or affinities, do not indicate Job Duties. Note: the exception is references to people, children etc. (see Keywords section of the codebook).
References to ability, do indicate job duties, e.g. musical ability.

Examples:

Job title: Dog Trainer
Participant's justification: "I like dogs"
Action: Do not code.
Because "liking" dogs is not necessarily a requirement of the job.

Knowledge of the Job

Job title: Minister/Priest
Participant's justification: "not interested in religion"
Action: Do not code
Because interest in religion is not a job duty as such.

Job title: Musician
Participant's justification: "You gotta have musical ability for that"
Action: code "1", congruent
Because musical ability is necessary in order to do the job.

Rule:
References to aspects of the environment can be coded as a job duty if they are specific to the environment of the job.

Explanation :- The purpose of the job duty column is to examine whether the participant makes decisions based on specific information about the job. However, rather than naming an activity, the participant may refer to a desirable or disparaging factor in the job environment which, because of its specificity, clearly demonstrates a knowledge (or lack of knowledge) of the job.

Examples:

The justification: "**sitting in an office**" cannot be coded for job duty because it is too general.

However, the justification: "**looking at blood and stuff**" should be coded for a job duty if a major portion (over 1/4) of the job description involved activities in the presence of blood and related substances, as in the case of the job title: Veterinary Assistant.

SELF PERCEPTIONS

PHYSICAL STRENGTH

Rule:

If the Participant's justification indicates an appraisal of their own physical strength (for other physical attributes see Physical ability,) compare their current strength on their physical ability template with the job's required strength on the Master data sheet. If the participant's justification indicates an appraisal of physical ability but no specific condition is indicated, assume that strength is the assessed factor. For example: **"Can't do that anymore"**.

Rule:

If the participant is indicating that they cannot do the job but their strength is equal to or greater than that required for the job, code "2" for an incongruent assessment of their physical strength. If their strength is less than what is required for the job, code "1" for a congruent assessment of their strength.

Examples:

Participant's justification: "I can't do that job anymore"
Job title: Truck Driver: *Job strength* :**"M"**
Participant's ability per physical ability template: **"L"**
Action: Code "1", congruent.

Participant's justification: "I can't do that job anymore".
Job title: Architect: *Job strength* **"S"**
Participant's ability per physical ability template: **"L"**
Action: Code "2", not congruent.

EDUCATIONAL LEVEL

Rule:

If the individual makes a reference to the knowledge required to do the job (even specific knowledge), compare their educational level rating on their physical ability template (physical ability) with the educational level for that job title on the master data sheet.

If the participant indicates that they do not have the knowledge to do the job, but their educational level is equal to or greater than that required, code "2". If their educational level is lower than that required for the job, code "1".

Examples:

Participant's justification: "you need too much schooling for that".
Participant's educational level from physical ability template: **"3"**

Job titles:
Nurses Aide : (educational level of "3" required) - Code "2", not congruent
Marriage Counsellor: (educational level of "5" required) - Code "1", congruent

Rule:
If the participant indicates that they have the knowledge to do the job, but their educational level is less than that required, code "2". If their educational level is equal to or greater than that required for the job, code "1".

Examples:

Participant's justification: "Even without schooling, I think I could do a good job".
Participant's educational level from the physical ability template: "**3**"
Job titles: Architect- educational level required: "**6**"- Code "2", not congruent as the job requires more education than what the participant has.
Delivery Truck Driver: educational level "**3**" required- Code "1", congruent as the job requirement matches that of the participant, and his assessment of his knowledge and that of the job are congruent.

PHYSICAL ABILITY

This category refers to six physical job demands other than strength. If the participant mentions a medical restriction, unless they confine it to a particular physical restriction, code strength (see Physical Strength above). However, if they specify the physical restriction check the appropriate Physical demand on the master data sheet for the job title in question. Compare this with the equivalent assessment on the participant's physical ability template.

Rules (do both)
1.) If the job requires the physical ability (indicated by a check in the column on the master data sheet), code "1" in the physical demand column on the score sheet. If the job does not require the physical ability, code "2".

2.) If the individual lacks the ability (indicated by an absence of a check on the doctor's medical report), then code "1" in the physical ability column on the score sheet. If the individual has the ability, code "2".

Examples:

Participant's justification: "I can't do that, not with my arms"
Participant's physical ability shows : **no ability** to reach/handle

Job titles:
Mail Carrier - (requires reaching/handling)
Action: Code "1" in physical demand column **AND** code "1" in physical ability column.

Playground Director - (does not require reaching/handling)
Action: Code "2" in physical demand column **but** code "1" in physical ability column.

Explanation : In the first case the participant's assessment of both the job's requirement and their own abilities was accurate, while in the second case their assessment of the job was inaccurate, though their assessment of their own ability was correct.

KEY WORDS / SPECIFIC REFERENCES.

This part of the code book outlines the coding rules which should be followed when the participant uses certain **key words** or expressions.

Coding "PEOPLE", or "PUBLIC"

Rules:

Any reference which qualifies for a social Holland code is automatically coded for a "dealing with people" Temperament, **and** a job duty.

References to "people" or "public" which are accompanied by a verb indicating involvement ie. "working with", "hassles with", "dealing with", which do not qualify for a Holland code, can be coded for a temperament and a job duty.

Example:

Participant's justification: "No, **dealing with people, solving** other **people's** problems".
Job title: Hotel Manager
Rationale: "Solving people's problems"qualifies for a social Holland code because it indicates a helping action toward people. "Dealing with people" qualifies for a job temperament of "dealing with people", and solving other people's problems qualifies for job duty because it reflects the CCDO job duty definition "planning, organizing, and directing policies, personnel "etc.

References to "people" or "public" which are accompanied by a verb indicating involvement i.e. "working with', "hassles with', "dealing with", which do not qualify for a Holland Code, can be coded for a temperament and a job duty.
Note: many jobs require interacting with people as a major portion of the job duty and therefore references to interactions with people are coded for a job duty.

Examples:

Participant's justification: "no, too many hassles with the public".
Rationale: "hassles" is coded as a "dealing with people temperament because it implies involvement with people, and "public" is coded for job duty, as many jobs require working with the public as a major component of the job.

Any reference to **"public"** is coded for a **job duty.**

Example::

Participant's justification: "No, too much public"
Job title: Waitress
Action:: Code: "1"
Because the CCDO describes working with the public as a major portion of the job duty.

References to "**people**" which are not expanded upon are not codeable.

Example:

Participant's justification: "people"
Job title: Any job title.
Action: Don't code
Rationale: The comment is so vague, that you cannot differentiate whether it refers to helping people, selling to them, working along side people, etc.

Coding "KIDS", "CHILDREN"

Rules:
References to "kids", or "children" should be treated the same as references to "people" when coding Holland codes and temperaments However, if the job description does not specifically include activities involving this age group they are treated as a separate group for coding job duties.

Examples:

Job title: Bank Cashier: requires the **temperament** of "dealing with people".
Participant's justification: "talking with kids"
Action: Code "1", congruent, for "dealing with people" in **temperaments,** because kids are treated as people.
However, code "2" not congruent, in **job duties** because the job description makes no reference to dealing with a specific age group.

Job title: Recreation Leader: CCDO job description specifies working with a range of age groups.
Participant's justification: "talking with kids"
Action: Code "1", congruent in, **job duties** column.

Coding "PUBLIC"

Jobs are considered to involve working with the "public" if a major portion of their CCDO entries (at least 1/4) describe activities involving ongoing interaction with, or repeated interactions with, a large or diverse population.

Examples:

Gas Station Attendant - is not a "public" job because, while some of its activities necessitate contact with the public, this is a minimal part of the CCDO job description.

Forest Ranger - is a "public" job because one third of its job description details activities which would necessitate contact with a diverse population.

Coding "DANGEROUS", "RISKY"

Whenever the participant makes reference to a job being too dangerous or risky, then examine the master data sheet in the column categories of **both environmental conditions** (to see if the CCDO lists it as having a "hazard"), and **temperaments** (to see

if it requires "stress/risk taking") . If the CCDO lists these requirements, code "1", congruent. If the CCDO does not list these requirements, code "2" not congruent. These categories are coded separately.

Example:

Participant's justification: 'That's a risky job"
Job title: Auto Racer
Action : Code "1" in the environmental conditions column and code "1" in the temperaments column..

Coding "HEAVY" or "TOUGH JOB"

Code "1" in the **physical demand** column if the job title is rated as **"M or greater** in the strength column in physical demand, otherwise code "2". Automatically code in the **strength** column if the participant specifically refers to himself when describing the demand, i.e. "That's too tough for me". (refer to the strength sub-category in the Self Perceptions section of the code book).

Example:

Job title: Brick layer(Strength demand- "H"eavy work)
Participant's justification: " that's a heavy job"
Action: Code "1", as the justification is congruent with CCDO criteria.

Coding "INSIDE" or "OUTSIDE"

Code "1" in Environmental Conditions if the participant's appraisal of the job as being "inside" or "outside" is congruent with the rating for that job title on the master data sheet (environmental conditions column 1)
Unless the participant's appraisal is an exclusive statement, i.e. "that is '**only**' an outside job", code an appraisal of "inside" or "outside" as being congruent with a CCDO rating of "B"oth

Example:

Participant's justification: "Outside job"
Job title: Brick Layer:- "B"oth
Action: Code "1", as being congruent with CCDO as the CCDO indicates that it is **both** inside and outside work.

Example:

Participant's justification: "Too much inside"
Job title: Scout Troop Leader - "O"utside
Action: Code "2", as being not congruent with the CCDO as the job is noted as being an outside job by the CCDO.

Key Words/ Specific References

Coding "DRIVE, DRIVING"

This justification, or any derivation of it, is coded as a job duty for all driving professions.

Example:
Job title: Truck driver
Participant's justification: "I like driving, especially long haul driving".
Action: Code "1" congruent, as driving is a major portion of the job duty for Truck Driver.

ADDITIONAL CATEGORIES

EXPERIENCE IN THE TASK

Rule:

If the participant states that they have done the job or a specific task related to the job, code "1" yes, has experience. The experience need not be at the specific job title. Stating that they have observed the job or activity is not sufficient to code.

Examples:

Job title: Cattle Rancher
Participant's justification: "I worked on a farm, we had cattle", or "Done it, and like it".
Action: Code "1", yes has experience in the task.

Rule:

If the participant explicitly states that they have not done the job, code "2" no experience in the task.

Examples:

Job title: Carpenter
Participant's justification: " no, I've never done that, so..." or, "no, never worked with wood, so...
Action: Code "2" no experience in the task

OBJECTIVE ABILITY TO DO THE JOB

Rule:

Code "1" if the participant's abilities on the physical ability template in both environmental conditions and physical demands meet or exceed the requirements of the job. If the participant is unable to meet any one of the requirements, code "2", as being unable to do the job.

A "1" is coded even if it is stipulated that the participant can only do the physical demand required for a restricted period of time, e.g. 2 hours. This is coded in this way in order to reduce subjectivity in assessing whether it is practical to do a job title part-time.

Examples of Uncodeable justifications

Job title: High-school teacher
"I don't like school"

Job title: Hair Stylist:
"not my bag"

Job title: Stenographer:
"no, women's work"

Job title: Architect:
"No hope of ever achieving that anyway"

Job title: Bookkeeper:
"No, that's boring"

Job title: Photographer:
"not interested"

Job title: Nursery School Helper:
"no patience"

Appendix 10

Sheppard's Procedure for Audiotaping Participants

The data for the present study were collected from Sheppard's interviews with the participants in his study. Prior to the interview, each participant in Sheppard's study was given a card sort task. This task required the participant to sort through a deck of occupations cards according to whether they would like to do that job, were indifferent about doing the job, or would dislike doing that job. 111 occupations listed on the "Occupations" (Part III) section of the Career Assessment Inventory were used. Once the card sort was done, Sheppard audiotaped the participants' justifications for liking or disliking job titles.

Prompts were used where necessary to elicit more detail in the participants' justifications. Prompts were kept to a minimum of two per card. Examples of prompts used are: " Could you tell me more about that?', Tell me what you wouldn't like about doing that job". Job titles which were placed in the indifferent pile were not discussed with the participants.

Appendix 11

Example of a Participant's Transcript of His Justifications

Likes	
Zoo Attendant	Be outside work, around animals, I think I'd like that.
Wildlife Manager	About the same thing.
Welder	Working with tools and stuff like that. I've been a welder.
Truck Driver	Same thing. I've been driving truck and stuff like that, heavy equipment.
Travel Bureau Agent	I think that would be interesting, I like travelling.
Tour Guide	That'll be the same thing, I like travelling, the outdoor type.
Ticket Agent	Wouldn't be too bad.
Stockroom Clerk	I've been that before, and I enjoyed that.
Sheet Metal Worker	Working with tools and stuff like that.
Security Guard	Might be an interesting job, often thought it looked like it might be an interesting job.
Railroad Engineer	Again, you'd be driving heavy equipment.
Post Office Clerk	Again you'd be in a clerk type of work like you did with the stockroom clerk.
Plumber	Again working with tools.
Photographer	I do that as a hobby and enjoy it.
Movie Projector Operator	I've done some of that and I enjoy it.
Medical Technician	Again, you're working around some type of tools and stuff like that.
Mechanic	I've been that.
Library Clerk	Again clerk's the type of work that's like the stockroom, I enjoyed that.

Heavy Equipment Operator	I've been a lot of that.
Forest Ranger	Outside work.
Fish and Game Warden	Same type of thing except you're out apprehending people, I don't know about apprehending people but, I don't know if I'd enjoy that part of it as much as the outdoor part of the work.
Electrician	Again, that's like mechanic.
Delivery Truck Driver	I miss driving truck.
Construction Worker	Depending on what kind of construction. Working on road construction and stuff like that, I'd enjoy that, outside kind of work.
Cattle Rancher	Same, outside work , it'll be nice.
Carpenter	It too, like mechanic except you're working with wood.
Bus Driver	I'm into driving heavy equipment.
Biologist	Again, well, it could be a lot of outside work, interesting work, challenging.

Dislikes

Waiter	That's inside work, boring.
Teacher's Aide	I'm not , I haven't got patience, enough to work around teaching too much, with the kids, I've taught adults and enjoyed that part of it.
Taxicab Driver	Be very boring to me, the others are more challenging of a job, bus driver would be similar but I don't think you'd have as many problems as a bus driver as you would taxi driving, problems with the people you deal with.
Stenographer	I'd find that boring.
Stage Manager	I'm not artistic, and anything that's got to do with art I find I'm not going to like it.
Social Worker	Too, I wouldn't be very anxious to get

	into that type of work because of the type of people you'd have to work with. I think I'd find it quite depressing after a while.
Sculptor	Again art, forget it.
Restaurant Cook	No, I wouldn't want to be inside as a rest-aurant cook.
Recreation Leader	Again, it would depend if you're working with a bunch of young people, I don't think I'd have the patience.
Receptionist	It would be a boring job.
Real Estate Salesperson	I wouldn't want to be anything that has to do with selling.
Radio/TV Announcer	I think a lot of that would be quite boring.
Private Secretary	Same thing, I don't think I, not enough challenge.
Private Detective	I wouldn't want anything to do with snooping around or trying to find out information or stuff like that or, sneaky.
Police Officer	Too, I wouldn't want to have to be involved in arresting people.
Playground Director	Again young people.
Nursery School Helper	Same thing.
Musician	I'm not artistic, I can't play any instrument even though I tried.
Minister, Priest etc.	I wouldn't want to be any of those because of my own religious beliefs.
Military Officer	I wouldn't want anything to do with military, I'm not for war, I'm for peace.
Marriage Counsellor	I'd find that a very difficult job too, I don't think I'd want to sort out other peoples affairs.
Manager of Pet shop	I'd find that very boring.
Magician	That would fall under artistic.
Logger	That work is too hard physically. I don't think I'd ever wanted to be a logger. I've

	worked heavy equipment in logging, and I tell you those poor guys worked, earned their money.
Life Insurance Salesperson	Again, sales.
Legal Secretary	I don't know much about it, but with the secretary on there, to me that sounds boring.
Labour Union Leader	Because of all the conflicts and stuff.
Jeweller	Artistic.
Janitor	Boring job.
Interior Decorator	Again artistic, and I'm not.
House Painter	I don't find that very exciting or challenging.
High school Teacher	Again, teaching kids, I wouldn't want to.
High school counsellor	Same.
Hair Stylist	That's not the type of work I'd want to get in to.
Funeral Director	Would be very boring.
Florist	Again, artistic.
Filing Clerk	Would be a boring job after a while, cause that's all you're doing is filing.
Fashion Model	Again, seems sort of an artistic field I wouldn't be interested in.
Fashion Designer	Same.
Director of Religious choir	You gotta be artistic, have a certain amount of artistic quality that I don't have.
Courtroom Reporter	Probably be very boring after a while.
Comedian	Again falls into a line of art that,
Circus Performer	It too is a type of artistic work, no talent in those areas.
Cement Mason	That's a hard job, physically.
Cartoonist	Artistic
Camp Counsellor	Again working with younger people, no patience.

Cabinet Maker	I put I liked to be a carpenter, but when you get down to cabinet making, you're getting down to very, kind of an artistic thing that I'm not good at.
Butcher	Boring, something that's a depressing job.
Bricklayer	Physically hard work.
Bookkeeper	Again very boring.
Bill collector	I wouldn't want to go around after people trying to collect money off people, conflict.
Barber	Artistic.
Bank Cashier	Very boring.
Auto Racer	I wouldn't have the guts to do it.
Art Dealer	Artistic.
Architect	Same.
Apartment Manager	You're looking at problems, people always have problems.
Actor	Artistic

References

Bartling, H.C., & Hood, A.B. (1981). An 11 yr. follow-up of measured interest and Vocational choice. Journal of Counseling Psychology, 28, 27-35.

Benedict, R. C. , & Ganikos, M. L. (1981). Coming to terms with ageism in rehabilitation. Journal of Rehabilitation, 47(4), 10-18.

Blake, R. (1981) Disabled older people: A demographic analysis. Journal of Rehabilitation, 47(4), 19-27.

Bolton, B. (1976). Handbook of Measurement and Evaluation in Rehabilitation. University Park Press, Baltimore.

Booth, J.A.G.,& Laurin-Dumas, M.S. (1983) Estimated versus measured interests and aptitudes in employment counselling. Natcon 5, 203-215. Minister of Supply and Services Canada.

Borgen, F.H. & Seling, M.J. (1978). Expressed and inventoried interests revisited: Perspicacity in the person. Journal of Counseling Psychology, 25, 536-543.

Bozarth, J.D. (1981). The rehabilitation process and older people. Journal of Rehabilitation, Oct/Nov/Dec. 28-32.

Campbell, D.P. (1977). Manual for the SVIB-SCII. Stanford, CA: Stanford University Press.

Canadian Classification and Dictionary of Occupations. (guides1971,-1985). Employment and Immigration Canada. Minister of Supply and Services Canada.

Caves Operations Manual. (1987). Vocational Consulting Group Inc. Vancouver, British Columbia, Canada.

Dolliver, R.H. & Will, J.A. (1977). 10 year follow-up of the Tyler Vocational Card Sort and the Strong Vocational Interest Blank. Journal of Counseling Psychology, 24, 48-54.

Dolliver, R.H. (1969).Strong Vocational Interest Blank versus expressed vocational interest: A Review. Psychological Bulletin, 72, 95-107.

Dunn, D.J. (1981). Vocational rehabilitation of the older disabled worker. Journal of Rehabilitation, Oct./Nov./Dec. 76-81.

Engram, B.E. (1981). Communication skills training for rehabilitation counselors working with older persons. Journal of Rehabilitation, Oct./Nov./Dec., 51-55.

Gelatt, H.B. & Clarke, R.B. (1967). Role of Subjective Probabilities in the Decision Process. Journal of Counseling Psychology, 14(4), 332-341.

Gellman, W. & Soloff, A. (1976). Vocational Evaluation, in Handbook of Measurement and Evaluation in Rehabilitation. ed. Bolton, B. University Park Press, Baltimore.

Giroux, R.F. (1983). Adult career counselling and guidance: A position paper. Natcon 3, 71-128. Minister of Supply and Services Canada.

Hansen, J. (1984). User's guide for the SVIB-SCII. Strong-Campbell Interest Inventory. Stanford University Press, Stanford, California.

Hester, E.J., Decelles, P.G., & Hood, L.E. (1986). The relationship between age and physical disability among workers: Implications for the future. The Menninger Foundation, Will Menninger Center for applied behavioral sciences return to work center, Topeka, Kansas.

Janoff-Bulman, R. & Frieze, I.H. (1983). A theoretical perspective for understanding reactions to victimization. Journal of Social Issues, 39(2), 1-18.

Janoff-Bulman, R. & Lang-Gunn, L. (1985). Coping with disease and accidents: The role of self-blame attributions. In L.Y. Abramson (Ed.) Social-personal influence in Clinical Psychology. New York: Guilford Press.

Johansson, C.B. (1982). Career Assessment Inventory. Minneapolis: National Computer Systems.

Myers, J. E. (1983). Rehabilitation counseling for older disabled persons: The state of the art. Journal of Applied Rehabilitation Counseling, 14(3), 48-53.

O'Neil, J. M. & Magoon, T. M. (1977). The Predictability of Holland's investigative personality type and consistency levels using the Self-Directed Search. Journal of Vocational Behavior, 10, 39-46.

Odell, C. (1955). Counseling and Training. In Dunn, D.J. Vocational rehabilitation of the older worker. Journal of Rehabilitation, 1981.

Parnes, H.S. & King, R. (1977). "Middle-aged Job Losers." Industrial Gerontology, Spring, 77-95.

Phillips, J. (1978). Occupational interest inventories: An often untapped resource. Journal of Applied Rehabilitation Counselling, 9, 10-12.

Pinkney, J. W. (1985). A card sort interpretive Strategy for flat profiles on the Strong-Campbell Interest Inventory. The Vocational Guidance Quarterly, June, 331-339.

Pitz, G.H. & Harren, V.A. (1980). An analysis of career decision making from the point of view of information processing and decision theory. Journal of Vocational Behavior, 16, 320-346.

Roessler, R. & Bolton, B. (1985). Vocational interests and occupations of rehabilitation clients. Vocational Evaluation and Work Adjustment Bulletin, Spring, 16-20.

Rubin, S.E. & Roessler, R.T. (1978). Foundations of the Vocational Rehabilitation Process. University Park Press, Baltimore.

Salmon, H.E. (1981). Theories of aging, disability and loss. Journal of Rehabilitation, 47(4), 44-50.

Sheppard, L.A. (1987). The Vocational Decision Making Problems of Older Disabled Workers. Masters Thesis. Simon Fraser University, Burnaby, British Columbia, Canada.

Simpson, I. H. & McKinney, J. C. (Eds.) (1966). Social aspects of aging. Durham, N.C.: Duke University Press.

Slaney, R. B. & Slaney, F. M. (1981). Brief Reports. A comparison of measures of expressed and inventoried vocational interests among counseling center clients. Journal of Counseling Psychology, 28(6), 515-518.

Sobel, I. & Wilcox, R. (1966). Placement techniques for older workers. Paris: Organization for Economic Cooperation and Development.

Sobel, I. (1966). Promoting the placement of older workers. Paris: Organization for Economic Cooperation and Development.

Strohmer, D. C. (1979). An exploratory study of the vocational decision-making problems of rehabilitation clients. Unpublished doctoral dissertation, Michigan State University.

Touchton, J. G. & Magoon, T. M. (1977). Occupational day dreams as predictors of vocational plans of college women. Journal of Vocational Behavior, 10,156-166.

Vocational Consulting Group Inc. (1987). CAVES Operations Manual. Vancouver, B.C., Canada.

Vocational Consulting Group Inc. (1987). Computer Assisted Vocational Exploration Systems Data Base. Vancouver, B.C., Canada.

Williams, K.S. Jr. (1978). The Vocational Card Sort: A tool for vocational exploration. The Vocational Guidance Quarterly, March, 237-243.

Williams, M.G. (1981). Independent living and older people. Journal of Rehabilitation, 47(4), 69-71.

Zajonc, R. B. (1980). Feeling & thinking: Preferences need no inferences. American Psychologist, Feb. 35(2), 151-175.

Zajonc, R.B. (1981). A one-factor mind about mind and emotion. American Psychologist, Jan.,101-102.