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## An analysis of motivation as a predictor of vocational rehabilitation outcomes

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AN ANALYSIS OF MOTIVATION AS A PREDICTOR  
OF VOCATIONAL REHABILITATION OUTCOMES

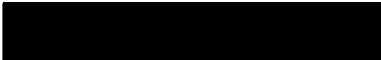
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A Thesis  
Presented to the  
Faculty of  
California State University,  
San Bernardino

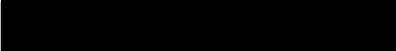
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## ABSTRACT

This study addressed the research question of which clinical and demographic variables predict the outcome of vocational rehabilitation. A primary purpose was to determine if an injured worker's motivation is a critical determinant of successful rehabilitation. Subjects were selected from two private firms in Southern California. Chi-square tests and t-tests were used to determine differences between the clients who returned to work and clients who remained off work. A regression model was tested to identify predictors of job placement. The counselor's rating of an injured worker's motivation was the best predictor of successful rehabilitation. There were differences in the number of weeks of job development, number of contacts made and openings found during job development, and counselor's rating of motivation between the working and non-working groups.

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## INTRODUCTION

Vocational rehabilitation counseling is a process which provides the disabled with an opportunity to return to work. The ultimate goal of job placement is accomplished through an evaluation of the individual's skills, an assessment of his or her interests, and job seeking skills training. Public agencies were among the first to incorporate vocational rehabilitation to reduce unemployment among the disabled and disadvantaged. Now these techniques and methods are being used as part of the Workers' Compensation system. Although no federal legislation exists, a number of states have established vocational rehabilitation as a part of the Workers' Compensation benefits, and in 1975, California was the first to make vocational rehabilitation mandatory (Deneen & Hesselund, 1986). Injured workers in California are entitled to vocational rehabilitation if they are unable to return to their "usual and customary" occupation as a result of an on-the-job injury and can benefit from reasonable services (California Labor Code, Section 139.5, 1977). This type of rehabilitation includes an evaluation by a "qualified rehabilitation representative" who determines if a plan is feasible for returning the injured worker to "gainful, suitable employment" (Administrative Guidelines of the Rehabilitation Bureau, Division of Industrial Accidents).

In recent years, the costs of vocational rehabilitation have escalated and questions have been raised about the effectiveness of this type of program. For instance, vocational rehabilitation costs in California have increased 284 percent since 1978; this increase is faster than the rate of inflation, monetary compensation provided to the injured worker, and costs of medical treatment. The average rehabilitation case now costs \$9,000. State legislators have the option of discontinuing mandatory vocational rehabilitation, as was done in Washington state, if it does not meet the needs of injured workers or prove to be cost-effective.

#### Providing Effective Counseling

Studies conducted on rehabilitation services have addressed the effectiveness of various techniques and the conclusions of these studies have helped those in the industry enhance the counseling process and become more cost efficient. Previous research has suggested that successful counseling includes job seeking skills training for clients, support of the client's family, and job development conducted by the counselor (Roessler & Bolton, 1985).

Job seeking skills training is designed to prepare the client for placement activity, including filling out applications, effective communication on the telephone and in person, and interviewing techniques. These skills are

extremely important for the injured worker who has usually been off work for more than a year and has sometimes lost self-esteem. Clients must be taught to describe their physical limitations in terms of their abilities rather than their disabilities.

Counselors also need to be aware of the injured worker's family situation and encourage the support of the family during the rehabilitation plan. Often, this can be accomplished by involving the spouse in counseling sessions or advising the worker to discuss the proposed occupation with the spouse prior to plan implementation. When the spouse is involved, the counselor has the opportunity to discuss information about the proposed occupation, especially as it impacts the entire family. An injured worker needs a broad support base during rehabilitation; family and spousal support improve the chances of returning to gainful employment (Personal training by Sandy Fioretti, 1984).

Finally, the counselor must direct services toward placing the client in a new occupation. Merely providing the client with a vocational assessment and evaluation does not fulfill the requirements of the law or the ethical obligations of the counselor. It is often critical that the counselor assist during job search activities by calling local businesses, identifying openings, and scheduling interviews when possible. A review of various

placement services by Vandergoot (1984) revealed that the counselor was most effective when focusing on placement as the long-term goal of rehabilitation services rather than functioning strictly as a career counselor.

#### Variables Which Have Predicted Rehabilitation Outcome

When injured workers have been provided with adequate counseling, other variables have been studied as predictors of rehabilitation outcomes.

Education. Education appears to be a strong indicator of both job placement and salary. In two separate studies, education was the only significant variable in predicting job placement or salary (Johnson & Rubin, 1986; Lewis & Bolton, 1986). Those clients who returned to work had as much as two years more education than those who remained off work (Smith & Crisler, 1985). There is, however, contrary evidence that education does not always play a role in predicting employment (Saxon, Spitznagel, & Shellhorn-Schutt, 1983). Since vocational rehabilitation involves using transferable skills in identifying the new career, the amount of a client's education is sometimes an important factor to consider. Clients who have more than a high school diploma usually have broader opportunities because of better basic skills such as reading, writing, and general knowledge.

Age. There is mixed evidence on whether age is a good predictor of rehabilitation outcome. In some studies age

did not show significant results as a predictor (Johnson & Rubin, 1986; Lewis & Bolton, 1986; Smith & Crisler, 1986). However, in others, age was a predictor of outcome (Saxon, Spitznagel, & Shellhorn-Schutt, 1983; Talley & Garner, 1988). The conventional wisdom in the rehabilitation field promotes the belief that younger clients are more successful in returning to work than older clients. The reasoning is that the younger client is more flexible in changing jobs and can work more years in the new field than the older client. Some older clients have been doing the same job for most of their work-life and have severe difficulty adjusting to a new occupation. They also have fewer years before retirement to increase their wages to a pre-injury level and build their retirement savings. The contrast is seen in very young clients who do not complete a rehabilitation plan because they decide to find work on their own, sometimes ignoring their physical restrictions. Other young clients have not reached a stage where they can commit to an eight month rehabilitation plan, especially when it means making a decision on a career choice. These two examples demonstrate a possible problem with some of the vocational rehabilitation research. There is a chance that the sample will be skewed in some direction, making the results of different studies contradictory. It is highly plausible that other underlying factors are the contributors to successful outcome, rather than age alone.

Type of disability. There are also mixed results on disability type as a predictor variable. Most studies have found no significant differences between the working and non-working groups when comparing types of injuries (Berkeley Planning Associates, 1988; Lewis & Bolton, 1986; Saxon, Spitznagel, & Shellhorn-Schutt, 1983). However, one study showed that type of disability was related to closure status, earnings at closure, and difference in pre- and post-injury wages (Talley & Garner, 1988). Although the authors stated that the injuries were primarily orthopedic in nature, they did not specifically describe how or what disability type affected the criterion variables. Other researchers have also found significant differences between groups. In one study, the presence of a psychiatric condition and a greater number of back surgeries each predicted unsuccessful placement (Smith & Crisler, 1986). Physical limitations, as opposed to type of disability, have been found to be more severe in the non-working population (Berkeley Planning Associates, 1988). For example, many clients have back injuries, but their physical limitations range from "no very heavy lifting" to "no lifting over 25 pounds and no repetitive bending and stooping". Defining the extent of the disability appears to be the important factor in predicting job placement among injured workers.

Motivation. Motivation of the injured worker as a predictor of job placement was addressed by Wong, Gay, and Wainwright (1987). They looked at the differences between clinical and statistical variables as predictors of employment and found that the counselors' predictions of employment outcome was significantly related to actual outcome. In fact, when compared to the variables of age, secondary disability, and jobs held during the past five years, the counselors' predictions were more accurate in determining rehabilitation outcome.

Work values. One might expect that a client's work ethic would be related to returning to work. Lewis and Bolton (1986) studied this possibility and found that work values approached significance ( $z=1.86$ ,  $p<.06$ ), providing a minimal contribution to the prediction of employment.

Other variables. Other variables that may play a role in predicting rehabilitation outcome include receipt of SSDI (Smith & Crisler, 1986), and type of rehabilitation plan (Berkeley Planning Associates, 1988). Clients receiving SSDI have less incentive to return to work because they are guaranteed a monthly income. Those involved in formal training plans are less likely to return to work because the training often involves learning skills completely unrelated to past jobs, and therefore, the client is limited to entry-level jobs in the new field.



### Variables Studied That Have Been Unrelated To Outcome

Variables found to have no effect on rehabilitation outcome include marital status (Johnson & Rubin, 1986; Smith & Crisler, 1986), race (Johnson & Rubin, 1986; Lewis & Bolton, 1986), sex (Saxon, Spitznagel, & Shellhorn-Schutt, 1983; Talley & Garner, 1988), months of rehabilitation service and number of services provided (Johnson & Rubin, 1986).

### Unstudied Variables

Counseling experience suggests another group of variables that are related to vocational rehabilitation outcomes. These include financially related variables such as new wages, differences in pre- and post-injury wages, presence of other income and ability to meet financial obligations. The financial situation of an injured worker is logically related to the need to work. When clients are able to meet their monthly obligations and will make significantly less money in their new occupations, it follows that they may be less likely to return to work.

The other category of variables suggested by counseling experience includes indicators of the labor market such as number of job openings and number of employer contacts made. This group of factors shows the availability of job openings and allows an assessment to be made of the client's opportunity to return to work. Labor

market research prior to plan implementation is meant to justify the need for workers in the proposed occupation. Job development conducted at the end of the plan confirms job availability. Clients involved in plans with limited labor markets may have more difficulty securing work.

#### Summary of Correlates of Vocational Rehabilitation Outcomes

The literature reviewed above suggests that the variables which tend to predict successful rehabilitation include education, age, severity of disability, the client's motivation, lack of another income, and plan type. Other variables such as marital status, race, and sex have not been shown to be significant predictors of rehabilitation outcomes. The client's work values have been shown to approach significance. This study will address the question of which factors tend to predict rehabilitation outcome including some variables which have already been studied and others that have not been previously used as predictors.

#### Variables Used in this Study

Previously studied variables. The variables to be used as predictors will include age, sex, marital status, type of injury, education, race, presence of other income, plan type, work values, and motivation. Although no relationship was previously demonstrated for marital status, race, and sex between successful and unsuccessful clients, these variables will be included as a means of

replicating results in the literature. Work values will also be studied since they approached significance in predicting outcome. Work values in earlier research were measured with the Work Values Inventory (Lewis & Bolton, 1986) which is purely conceptual and there is little information on its reliability. The Survey of Work Values (Wollack, Goodale, Wijting, & Smith, 1971) used in this study has good construct validity and acceptable alpha coefficients.

Previously unstudied variables. Additional variables not used before include wages at date of injury, new wages, difference in pre- and post-injury wages, ability to meet financial obligations, labor market contacts, labor market openings, number of weeks of job development, number of job development contacts, and number of job development openings.

#### Expected Results

1. This study attempts to show that motivation is a strong predictor of rehabilitation outcome. It is expected that the counselor's ratings of motivation will be higher for the group that returns to work.

2. The work value of attitude toward earnings is expected to be stronger in the group that did not return to work. This expectation is based on counseling experience in which the injured workers center their discussion on their financial situations. Those clients who focus on

money as a primary issue appear to be less likely to return to work.

3. The demographic variables of age and education are also expected to be different between the two groups with younger, more educated clients returning to work.

4. The type of plan should give an indication of rehabilitation outcome. It is anticipated that injured workers involved in formal training programs are less likely to return to work than those in all other plan types.

5. Finally, the difference between pre- and post-injury wages is expected to be significantly different between the group that returned to work and the group which did not.

## METHOD

### Subjects and Procedure

Subjects for this study were vocational rehabilitation clients selected from two private firms in Southern California. The sixteen participants who voluntarily completed the Survey of Work Values were actively involved in rehabilitation services from June, 1987 through September, 1988. For these 16 subjects the counselor told each client that the data were being collected for a research project about variables that help determine the outcome of rehabilitation. The subjects were told which variables were being included in the study. It was then

requested that the client fill out the survey and sign a release form allowing collection of the remaining data from the client's file.

One year after the inception of the study, data from only 10 subjects had been gathered because of difficulties in finding counselors and agencies willing to participate in the study. For this reason, the remaining data were gathered from 50 cases closed between 1986 and 1988. Hence, the data on work values was not obtained for these 50 subjects.

Closed cases. For the closed cases, a random sample was selected from archived files and data collected by the researcher. The counselor's rating of motivation was obtained by asking each of three counselors to rank their own client's motivation on a scale of 1 to 5. Although this data was obtained with the counselor's knowledge of rehabilitation outcome, the researcher recommended that objective factors such as number of appointments kept and following through on assignments be used to assess motivation.

### Measurements

Counselor's questionnaire. The following 16 variables were collected from counselors working with rehabilitation clients (See Appendix A for copy of questionnaire):

Age - the chronological age of the subject at the time of placement services.

Sex - male or female.

Marital status - whether the client was married or not married at the time of services.

Wages at the date of injury - dollar amount of wages per hour.

New wage - the anticipated amount of the entry level salary for the new occupation as indicated in the rehabilitation plan.

Difference in wages - the new wage minus the wage at date of injury.

Injury - type of injury, included back, elbow, psychiatric, hand, shoulder, ankle, knee, foot, or multiple injuries.

Education - the number of years of schooling completed.

Race - subjects in this study included whites, blacks, and hispanics.

Presence of other income - included spousal support, worker's compensation settlement, retirement, and/or SSDI.

Ability to meet financial obligations without working - the counselor's determination of whether the client needed to work to meet financial obligations.

Labor market contacts - the total number of employers contacted during labor market research to determine job availability and salary range for the new occupation.

Labor market openings - the total number of job openings identified during labor market research.

Number of weeks of job development - if applicable, the total number of weeks of job placement services provided by the counselor.

Job development contacts - the number of employer contacts made by the counselor during placement assistance.

Job openings - the number of openings identified by the counselor.

Type of plan - direct placement (already working), direct placement (placement assistance for 60 to 90 days), on-the-job training, formal training, or self-employment. Because formal plans are usually distinguished from other types of plans as less likely to result in successful rehabilitation, the data was separated into "formal plans" and "others".

Counselor's assessment of client's motivation - the counselor was asked to rate the client's motivation on a Likert five point scale, with 1 being low and 5 being high.

Survey of Work Values. Six work values were measured by the Survey of Work Values. These six work values are listed below with a brief description of each. The Survey of Work Values was selected as an objective measure of motivation. Since work values are determinants of motivation to work, the operational definition used in this study was that motivation can be estimated by an assessment of work values. Each of the six work values' sub-scales comprised nine items, of which two to four are

reverse-scored. The scale items and an indication of which have been reverse-scored are in Appendix B. A five point continuum is used to measure the agree-disagree dimension. Coefficient alphas from previous work range from .53 to .63 and test-retest correlations range from .65 to .76 for the sub-scales.

Social Status - the effect the job alone has on a person's standing among his friends, relatives, and co-workers, in his own eyes and/or in the eyes of others.

Pride in Work - the satisfaction and enjoyment a person feels from doing his/her job well.

Job Involvement - the degree to which a worker takes an active interest in co-workers and company functions and desires to contribute to job-related decisions.

Activity Preference - a preference by the worker to keep himself active and busy on his job.

Attitude Toward Earnings - the value an individual places in making money on the job.

Upward Striving - the desire to seek continually a higher level job and a better standard of living.

#### Data Analysis

Descriptive statistics were calculated to summarize the demographics of the sample.

Comparison of active versus inactive cases. The t-test for independent groups was first used to compare the active cases with the closed cases to assure that no differences



existed in age, education, wages at date of injury, new wages, difference in pre- and post-injury wages, ability to meet financial obligations, presence of other income, number of labor market contacts, number of labor market openings, number of weeks of job development, number of job development contacts, number of job openings, and ratings of motivation. A chi-square test was performed to compare sex and marital status between the two groups. All chi-square tests were performed with the Yates correction.

Differences between those who returned to work and those who did not. The t-test was also used to analyze differences between those who had returned to work and those who had not on the variables of age, wages at date of injury, new wages, difference in wages, education, labor market contacts, labor market openings, number of weeks of job development, number of job development contacts, number of job openings, presence of other income, ability to meet financial obligations, counselor's assessment of motivation, and the six work values. A chi-square was used, with the Yates correction, to analyze differences in type of plan, type of injury, sex, marital status, and race for outcome.

Prediction of rehabilitation outcomes. A multiple regression model was tested to predict outcome including the variables of counselor's assessment of motivation, type of plan, age, difference in wage, and education. These

variables were selected based on clinical experience and were believed to be primary factors in determining rehabilitation outcome. Finally, a discriminant function analysis was done to determine the ability of the predictor variables to correctly classify cases, thus providing additional evidence for the predictability of outcomes.

## RESULTS

### Sample Characteristics

The sample consisted of 44 male and 22 female clients. Forty-four were married and 22 were unmarried. Thirty-seven had suffered back injuries, 8 had multiple injuries, 6 had hand injuries, 5 had knee injuries, 4 had foot injuries, 4 had arm or shoulder injuries, and 2 had psychiatric injuries. Forty-four of the clients were white, 6 were black, and 16 were hispanic. Forty-two had some other form of income, but only 14 were able to meet their financial obligations without working. Ten had returned to work before formal placement activities, and therefore a direct placement plan was written to reflect their employment. Two were involved in formal placement plans, 6 were working in on-the-job training, 43 attended a formal training program, and 2 were self-employed. Thirty-nine clients were successful in returning to work.

Typical client. The typical client was 38.5 years old, had a high school diploma, and was making almost \$10 an hour at the time of injury. Most were expecting a

minimum of \$6 an hour from their new occupation. The average number of weeks spent looking for work was 6, with the counselor making 108 calls and finding 11 openings. Labor market research prior to the plan consisted of an average of 12 calls finding 3.75 openings. The average rating of the client's motivation was 3.44, slightly above average. All had job seeking skills training prior to formal placement activities.

#### Comparison of Active and Inactive Cases

The t-tests and chi-square comparing the active cases with inactive cases showed no significant differences among demographic variables, services provided, or counselor rated motivation. (See Table 1.)

TABLE 1

Comparison of all Variables for Active and Inactive Cases

Variables	Group 1 Active		Group 2 Inactive		t
	Mean	SD	Mean	SD	
Age	37.50	10.91	38.78	10.37	0.42 <sup>a</sup>
Education	11.26	2.58	12.18	1.61	1.29 <sup>j</sup>
Wages at Date of Injury	10.88	6.38	9.20	4.63	-1.14 <sup>b</sup>
New Wages	6.38	1.59	6.22	2.00	-0.26 <sup>c</sup>
Difference In Wages	-4.50	5.81	-2.91	4.07	1.21 <sup>c</sup>
Ability to Meet Financial Obligations	0.87	0.36	0.69	0.47	-1.19 <sup>e</sup>
Other Income	0.44	0.51	0.28	0.46	-1.14 <sup>d</sup>
Labor Market Contacts	12.73	5.12	11.75	3.35	-0.76 <sup>f</sup>
Labor Market Openings	5.33	5.60	2.80	2.12	-1.68 <sup>j</sup>
Number of Weeks Job Development	5.67	4.01	6.57	3.69	0.59 <sup>g</sup>
Job Development Contacts	88.82	94.25	125.15	84.39	0.99 <sup>h</sup>
Job Development Openings	10.18	14.84	11.92	8.62	0.35 <sup>i</sup>
Motivation	3.94	1.34	3.28	1.26	-1.79 <sup>a</sup>

TABLE 1 (Continued)

Comparison of all Variables for Active and Inactive Cases

	Group 1 Active		Group 2 Inactive		chi-square
	Female	Male	Female	Male	
Sex	6	10	16	34	0.01 <sup>k</sup>
Marital Status	Single	Married	Single	Married	0.01 <sup>k</sup>
	6	10	16	34	

Note.

- a df=64
- b df=63
- c df=62
- d df=60
- e df=51
- f df=42
- g df=24
- h df=22
- i df=21
- j df=17.4
- k df=1

Comparison of Successful and Unsuccessful Groups

Variables expected to differ. There were no significant differences between the working and non-working groups on the variables of education, age (see Table 2), and type of injury (see Table 3.) The work values of social status, activity preference, upward striving, pride, job involvement and attitude toward earnings were not significantly different between the successful group and the unsuccessful group (see Table 4.) The counselor's rating of motivation and plan type were the only variables in this category which significantly differentiated the criterion groups (see Table 2 and 3.)

TABLE 2

Means and t-tests for Variables Predicted to be Related to Outcome for Working and Non-working Groups

Variables	Group 1 Returned to Work		Group 2 Remained off work		t
	Mean	SD	Mean	SD	
Education	12.05	1.75	11.85	2.13	0.42 <sup>b</sup>
Age	39.77	11.32	36.59	8.86	1.22 <sup>a</sup>
Counselor Rated Motivation	4.21	0.89	2.33	0.96	8.11 <sup>a*</sup>

\*p<.001

Note.

<sup>a</sup> df=64

<sup>b</sup> df=63

TABLE 3

Chi-square Results for Type of Plan  
and Injury by Outcome

	Type of Plan	
	Formal	Others
Return to Work	22	5
Not Return to Work	21	15

chi-square=2.82, p<.1  
phi=.26

	Type of Injury			
	Back	Psychiatric	Hand	Arm
Return To Work	22	0	3	3
Not Return to Work	15	2	3	1

	Type of Injury		
	Multiple	Foot	Knee
Return to Work	6	2	3
Not Return to Work	2	2	2

Note: There were insufficient cases among the non-back injury categories to perform a chi-square.

	Type of Injury	
	Back	All Others
Return To Work	22	17
Not Return to Work	15	12

chi-square=0.005, p>.05

TABLE 4

Means and t-tests For Work Values  
for Working and Non-working Groups

Variables	Group 1 Returned to Work		Group 2 Remained off work		t
	Mean	SD	Mean	SD	
Social Status	18.27	7.98	22.80	4.21	-1.48 <sup>a</sup>
Pride	41.91	3.27	38.20	6.87	1.49 <sup>a</sup>
Job Involvement	38.45	4.37	35.00	7.35	1.18 <sup>a</sup>
Activity Preference	38.64	4.03	37.80	5.76	0.34 <sup>a</sup>
Attitude Toward Earnings	24.36	5.14	26.20	4.44	-0.68 <sup>a</sup>
Upward Striving	32.91	3.23	29.40	8.32	0.91 <sup>b</sup>

a df=14  
b df=4.6

Variables predicted not to differ. There were no differences between the groups on the variables of sex, marital status, and race (see Table 5.)



TABLE 5

Chi-Square Results for Variables  
Predicted Not To Differ

	Sex	
	Male	Female
Return to Work	25	14
Not Return to Work	19	8

chi-square=0.28, p>.05

	Marital	
	Single	Married
Return to Work	14	25
Not Return to Work	8	19

chi-square=0.28, p>.05

	Race		
	White	Black	Hispanic
Return to Work	30	2	7
Not Return to Work	14	4	9

chi-square=4.71, p>.05

Variables previously unstudied. The groups were significantly different on the variables of number of weeks of job development, number of contacts made, number of openings found and new wages. There were no significant differences in wages at date of injury, differences in pre- and post-injury wages, labor market contacts, and labor market openings (see Table 6.)

TABLE 6

Means and t-tests For Variables Previously Unstudied for Working and Non-working Groups

Variables	Group 1 Returned to Work		Group 2 Remained off work		t
	Mean	SD	Mean	SD	
Wages at Date of Injury	9.97	5.62	9.08	4.29	0.69 <sup>a</sup>
New Wages	6.65	1.94	5.69	1.72	2.05 <sup>b*</sup>
Difference In Wages	-3.26	4.96	-3.38	4.02	0.10 <sup>b</sup>
Other Income	0.25	0.44	0.42	0.50	-1.43 <sup>c</sup>
Ability to Meet Financial Obligations	0.76	0.43	0.68	0.48	0.62 <sup>d</sup>
Labor Market Contacts	11.77	3.80	12.41	4.26	-0.52 <sup>e</sup>
Labor Market Openings	3.75	2.53	3.75	5.06	0.00 <sup>f</sup>
Number of Weeks Job Development	3.77	2.55	8.53	3.33	-4.09 <sup>g***</sup>
Job Development Contacts	50.82	39.41	157.31	90.85	-3.82 <sup>h**</sup>
Job Development Openings	5.20	3.79	15.62	13.82	-2.59 <sup>i*</sup>

Note.

<sup>a</sup> df=63  
<sup>b</sup> df=62  
<sup>c</sup> df=60

<sup>d</sup> df=51  
<sup>e</sup> df=42  
<sup>f</sup> df=28

<sup>g</sup> df=24  
<sup>h</sup> df=16.9  
<sup>i</sup> df=14.3

\*\*\*p<.001  
\*\*p<.01  
\*p<.05

Multiple regression analysis. Variables that had been predicted to be useful in determining job placement outcome (age, plan type, education, difference in wages, and motivation) were entered in a multiple regression model to predict return to work. Return to work was coded as "0" and not returning to work was coded as "1". As might have been expected from the t-test results, only counselor rated motivation was a significant predictor of whether clients returned to work. (See Table 7.) A subsequent stepwise multiple regression of these 5 variables indicated that motivation was the best predictor individually, but that prediction of outcome was improved when plan type was added to the equation (See Table 8.) Although the Cohen and Cohen (1983) guideline of 40 cases per variable was violated by sample size, it was felt that given this study was exploratory in nature, a stepwise regression was justified. Alone, motivation accounted for 49% of the variance; together with plan type, they accounted for 52%. Although number of job development weeks, job development contacts, and job development openings also had shown significant differences between groups, the n was too small (23-26 cases) for including these three variables in a multiple regression.

TABLE 7

Analysis of Variance Table for Multiple Regression  
for Predicting Rehabilitation Outcome

<u>Source</u>	<u>df</u>	<u>SS</u>	<u>F</u>	<u>p</u>
Regression	5	8.03	12.97	.0001
Error	57	7.05		

<u>Variable</u>	<u>b</u>	<u>Standard Error</u>	<u>F</u>	<u>p</u>
Intercept	1.85			
Education	-0.03	.02	1.25	n.s.
Age	0.00	.00	0.02	n.s.
Plan	-0.19	.01	3.40	>.05
Difference in Wages	0.00	.01	0.02	n.s.
Motivation	-0.25	.04	49.17	.0001

Note: unstandardized regression weights

TABLE 8

Stepwise Multiple Regression  
Predicting Rehabilitation Outcome

<u>Variable entered</u>	<u>R<sup>2</sup> improvement</u>	<u>R<sup>2</sup> total</u>	<u>F for equation</u>	<u>p</u>
Motivation	.49	.49	60.14	.0001
Plan type	.03	.52	32.74	.0001

	<u>b</u>	<u>Standard error</u>	<u>F</u>	<u>p</u>
Motivation	-0.25	.03	52.48	.08
Plan type	-0.17	.09	3.19	.0001

Discriminant function analysis. Discriminant function analysis is similar to regression and can be used to test the ability of a model to classify cases. Using the full model (5 variables), a discriminant function analysis was run; 86.2% of the cases were correctly classified. (See Table 9.)

TABLE 9

Discriminant Function Classification Analysis  
Using All Variables

<u>Work Actual</u>	<u>Predicted</u>	
	Return to Work	Not Return to
Return to Work	34 87.2%	5 12.8%
Not Return to Work	4 15.4%	22 84.6%
Correctly Classified: 86.15%		

To investigate the ability of classification of the 2 and 1 variable models suggested by the regression analyses, 2 additional discriminant function analyses were done. These discriminant function analyses indicated that both the one variable model (motivation) and the two variable model (motivation and plan type) correctly classified 83.3% (see Tables 10 and 11.)

TABLE 10

Discriminant Function Classification Analysis  
for Motivation Alone

<u>Work Actual</u>	<u>Predicted</u>	
	Return to Work	Not Return to
Return to Work	31 79.5%	8 20.5%
Not Return to Work	3 11.1%	24 88.9%
Correctly Classified: 83.3%		

TABLE 11

Discriminant Function Classification Analysis  
for Motivation and Plan Type

<u>Actual</u>	<u>Predicted</u>	
	Return to Work	Not Return to Work
Return to Work	34 87.2%	5 12.8%
Not Return to Work	6 22.2%	21 77.8%
Correctly Classified: 83.3%		

## DISCUSSION

The most provocative result of the study was the finding that the counselor's assessment of motivation was an accurate predictor of job placement, thus, confirming the finding in the Wong, Gay, and Wainwright (1987) study. The mean for motivation for the non-working group was 2.3, slightly below the midpoint; the mean for the working group was 4.2, placing it in the high average range. The original hypothesis stated that motivation would be a predictor of job placement. It was measured subjectively through the counselor's rating, and objectively by the Survey of Work Values. Since there were no differences between the groups among the variables measured by the Survey, the interpretation can include two possibilities.

The first is that the counselor's assessment of a client's motivation is accurate. Part of the counselor's job is to determine whether the injured worker can benefit from reasonable services. This most often includes an evaluation of transferable skills, physical status, ability to participate, and willingness to take an active role. When the client's motivation is questionable, the counselor must objectively document behaviors which indicate a lack of participation. The objective measures include missed appointments, incomplete assignments, and attire. The counselor can only subjectively assess attitude, rapport, and honesty. All of these factors contribute to the counselor's appraisal of motivation.

The data resulting from time spent in job development also indicates the accuracy of counselor's assessment of motivation. During job placement, clients are expected and have agreed in writing to keep 2 appointments per week with the counselor, make their own telephone calls, and dress appropriately for job hunting. When clients fail to accomplish these tasks, it is an indicator to the counselor that the client is not motivated. Furthermore, clients who fail to regularly participate in job placement activities are likely to require more time in finding a job. During job development, the non-working group received an average of 8.5 weeks of assistance with the counselor making 157 calls and identifying 15 openings. The working group



tended to return to work faster, after an average of 3.75 weeks and the counselor made only 50 calls, finding 5 openings.

The issue of rapport between counselor and client is the second possible interpretation of motivation being a predictor of job placement. Can the relationship predestine the outcome of rehabilitation? And if so, how important is it? From the data it appears that equivalent and comparable services were provided to both groups. Approximately 12 contacts were made during labor market research and 3 or 4 openings identified for both groups; therefore, the opportunity to return to work is comparable for both groups. Since the job opportunities are the same for both groups, this may mean that there is a lack of rapport between counselor and client during services.

If the client-counselor relationship is critical to successful rehabilitation, then a counselor might ethically be obligated to refer the case to another individual if there are difficulties in the relationship. Some counselors and firms do refer on a regular basis; however, many counselors do not have the opportunity because of work loads, managerial pressure, and time restraints. Another study should more directly address the question of counselor-client rapport to determine its effect on job placement.

It was expected that there would be a difference between the groups for the work value of attitude toward earnings. Unfortunately, the sample size (16) for this analysis was very small, and the results may have been impacted. However, it was interesting to note that attitude towards earnings had a much lower mean than expected for both groups. Clients often discuss their financial problems and tend to focus on the salary potential of their new occupation. Therefore, it was anticipated that this would be a strong value for both groups, and that the group which did not return to work would have a higher mean.

Social status was the lowest ranked value for both groups, possibly because most subjects were predominantly blue collar workers who do not consider social status as a requirement for respect from family and friends. The highest value for both groups was pride in work, with the remaining three values also ranking high for both groups. The high ratings for pride in work is key to interpreting the results for all of the work values.

The injured worker's focus on money as a key issue in vocational rehabilitation provides verbal cues to the counselor that this is an important factor in returning to work. The conclusion that attitude toward earnings would be the representative value for this focus was the result of the overwhelming amount of time spent discussing this

with clients. However, the results of this study demonstrate that money may represent much more than financial gain. In our society a person's salary often represents success in a career. The fact that pride, job involvement, and upward striving ranked high for both groups shows that these are the values most individuals seek in their work, and the inference is that money is representative of obtaining satisfaction for these needs.

It may be that the issue of salary discussed so often during appointments is actually the client's need for a job that provides personal satisfaction. The fulfillment of work values which have been absent since the date of injury is critical to some clients, but they may only be able to express their needs in terms of wages. For the group which did not return to work, the new occupation may be a poor substitute for the field they left. For some clients the rehabilitation plan is merely a device for continuing temporary disability and when the time for job placement arrives, it is obvious to the client that the new job will not fulfill his or her work values. The end of formal training and the job placement period are the times during which clients are most likely to stop participating in structured vocational rehabilitation. Perhaps these results demonstrate that the problem is not necessarily financial, but related to the injured worker's needs for career satisfaction.

Another difference was observed when comparing the new wages received by the groups. Both groups were expected to make approximately \$3.00 less per hour upon returning to work, however, there was a significant difference between the means. That is, the non-working group was expected to make approximately \$5.69 per hour and the working group was expected to make \$6.65 per hour. The working group's wage will support most families with two incomes, but many families can't survive on \$5.69 an hour, even if it is a second income. The clients' previous earnings of \$9.00 or \$10.00 per hour may have meant the difference between a new car or nicer house, but the difference between \$5.69 and \$6.65 can determine how many groceries are purchased and which bills are paid.

Since the new wages were those indicated in the rehabilitation plan and not the wages the client actually received, it is also feasible that the more positive and motivated clients performed better during the interview and on the job. This often leads to an increase in wages and promotional opportunities. Since the working group returned to the labor force after only 3.75 weeks, the inference can be made that they were better able to present themselves to potential employers.

The original hypothesis stated that there would also be differences between the two groups on the variables of age, education, and plan type. Age and education show no

difference: the subjects were homogenous on these factors. Most were in their thirties and had a high school education. The sample did not provide balanced data for plan type; a majority of the clients attended formal training and only small numbers were classified in the other categories. Although there was a difference observed when comparing formal training to all other plan types, this result is counter to conventional wisdom. Formal training is viewed as the type of plan least likely to result in successful rehabilitation, even though it is the most frequently written type of rehabilitation plan.

In summary, the most interesting result of this study was the finding that the counselor's assessment of motivation is an accurate predictor of job placement. One interpretation of this result is that the counselor has the ability to assess motivation based on both objective and subjective factors. However, if the counselor judges the client to be unmotivated, and this effects the client-counselor relationship, then rapport may have an impact on the outcome of rehabilitation. The Survey of Work Values was not helpful in distinguishing differences between successful rehabilitation cases and unsuccessful rehabilitation cases. It appears from the results that injured workers have tremendous pride in their work, and that rehabilitation plans are not always successful in satisfying the values and needs of these clients. There

were no differences in age or education because of the homogeneity of the sample. It was expected that the type of plan would have an effect on the outcome of rehabilitation; however, the results showed that plan type predicted in the opposite direction of what was expected. Those clients in formal training plans were more likely to return to work than clients in all other types of plans.

#### Future Research

This study has demonstrated the importance of an injured worker's motivation to the success of vocational rehabilitation. Since the counselor's interpretation of the client's motivation impacts on their relationship, future research should address how important the counselor-client relationship is to rehabilitation outcomes. The effect of rapport between counselor and client needs to be operationally defined in future studies and its effect on services analyzed. If rapport plays a major role in determining the success of rehabilitation, then it may be more cost-effective to transfer a case to another counselor rather than allowing a poor relationship to hinder job placement.

Because the formal measurement of work values remained unavailable, a second area for future research is the effect that work values have on job choice among vocational rehabilitation clients. Since injured workers have limitations in the new work they choose, the fulfillment of

work values may be important in identifying a viable career choice and subsequent rehabilitation success. The verbal cues presented to the counselor during appointments is one possible means of measuring work value needs of the client. It can be supported by using a formal assessment tool, such as a work values survey. This area of research may help improve the definition of evaluative and assessment services in vocational counseling.

#### Limitations of this Study

This study was limited by its use of a small sample size, part of which were archival data. Even though the archived data were similar to the active cases, the researcher was unable to administer the Survey of Work Values to a majority of the subjects. This was also a correlational study which can suggest causal relationships; by no means is there evidence to suggest that any of the significant predictor variables are the cause of successful rehabilitation. However, practically speaking, having significant predictor variables can be useful for a counselor to know.

#### Final Note

The counselor's role in vocational rehabilitation is often tenuous; a working relationship must be maintained with four or five parties who are usually adversaries. This places the counselor in a sensitive situation and can reduce the counselor's influence in making recommendations.

The results of this study and other research demonstrates the importance of the counselor's evaluation in determining the feasibility of rehabilitation services. Recent changes in the Administrative Guidelines of the Rehabilitation Bureau are aimed at improving the counselor's stature among rehabilitation professionals and injured workers. This may be the step needed to allow counselors more authority in the rehabilitation process and improved services for all involved, especially the injured worker.



APPENDIX A  
COUNSELOR'S QUESTIONNAIRE

Please provide the following information from the file:

1. Age
2. Marital status
3. Occupation at time of injury
4. Wages at time of injury
5. New occupation
6. Expected wages
7. Type of injury or injuries (please include psych injury if present.)
8. Education
9. Race
10. Type of plan
11. What are the worker's other sources of income, if any?
12. Is the person able to meet financial obligations without working?
13. Labor Market information
  - How many successful contacts were made during the labor market survey (those that generated information)?
  - How many openings were identified?
  - How many anticipated openings within the next six months?
  - How many had hired within the last six months?
14. Job development information (if applicable)
  - How many weeks of job development were there?
  - How many contacts were made?
  - How many openings were identified?
  - How many employers without openings were accepting applications?
15. On a scale of 1 to 5, with 5 as high, how would you assess the injured worker's motivation?

16. Did the injured worker return to work in the new occupation and remain in that job until you closed the case?

17. Any comments which you feel are important or have influenced the progress of the case?

APPENDIX B  
SURVEY OF WORK VALUES

Social Status

1. One of the reasons that I work is to make my family respect me.
- \* 2. A person does not deserve respect just because the person has a good job.
- \* 3. A job with prestige is not necessarily a better job than one which does not have prestige.
4. My friends would not think much of me if I did not have a good job.
- \* 18. Prestige should not be a factor in choosing a job.
26. The person who holds down a good job is the most respected person in the neighborhood.
38. Having a good job makes a person more worthy of praise from friends and family.
- \* 45. As far as my friends are concerned, it could not make any difference if I worked regularly or only once in a while.
49. Even though they make the same amount of money, the person who works in an office has a more impressive job than the person working as a sales clerk.

Activity Preference

5. A job which requires the employee to be busy during the day is better than a job which allows a lot of loafing.
- \* 9. If a person can get away with it, that person should try to work just a little slower than the boss expects.
- \* 20. The best job that a worker can get is one which permits the worker to do almost nothing during the work day.
- \* 27. When an employee can get away with it, the employee should take it easy.

29. A worker who takes long rest pauses is probably a poor worker.

39. A person would soon grow tired of loafing on a job and would probably be happier if he or she worked hard.

\* 46. If a person is given a choice between jobs which pay the same money, the person should choose the one which requires as little work as possible.

50. A person should try to stay busy all day rather than try to find ways to get out of doing work.

54. If a worker keeps himself busy on the job, the working day passes more quickly than if the worker were loafing.

### Job Involvement

\* 6. Most companies have suggestion boxes for their workers, but I doubt that the companies take these suggestions seriously.

7. A good worker cares about finding ways to improve the job, and when one has an idea, one should pass it on to the supervisor.

14. One who has an idea about how to improve one's own job should drop a note in the company suggestion box.

17. A good worker is interested in helping a new worker learn the job.

\* 24. If a worker has a choice between going to the company picnic or staying home, the worker would probably be better off at home.

25. Even if a worker has a very low-level job in a company, it is still possible for the worker to make suggestions which will affect company policy.

33. Once a week, after the work day is over, a company may have their workers get together in groups for the purpose of discussing possible job changes. A good worker should remain after quitting time to participate in these discussions.

\* 37. If something is wrong with a job, a smart worker will mind his or her own business and let somebody else complain about it.

- \* 44. One should do one's own job and forget about such things as company meetings or company activities.

### Upward Striving

- 8. Even if a person has a good job, the person should always be looking for a better job.
- 11. In choosing a job, a person ought to consider chances for advancement as well as other facts.
- 19. One should always be thinking about pulling oneself up in the world and should work hard with the hope of being promoted to a higher-level job.
- \* 22. If a person likes his job, the person should be satisfied with it and should not push for a promotion to another job.
- 28. The trouble with too many people is that when they find a job in which they are interested, they don't try to get a better job.
- 31. A worker who turns down a promotion is probably making a mistake.
- \* 35. A promotion to a higher-level job usually means more worries and should be avoided for that reason.
- 40. A well paying job that offers little opportunity for advancement is not a good job for me.
- \* 42. One is better off if one is satisfied with one's own job and is not concerned about being promoted to another job.

### Attitude Toward Earnings

- 10. A person should hold a second job to bring in extra money if the person can get it.
- 15. A person should choose the job which pays the most.
- \* 21. If I were paid by the hour, I would probably turn down most offers to make extra money by working overtime.

23. A person should take the job which offers the most overtime if the regular pay on the jobs is about the same.

30. A person would choose one job over another mostly because of the higher wages.

34. The only good part of most jobs is the paycheck.

\* 41. When someone is looking for a job, money should not be the most important consideration.

47. A good job is a well paying job.

51. A person should take a job that pays more than some other job even if that person cannot stand other workers on the job.

#### Pride in Work

12. One who does a sloppy job at work should feel a little ashamed of oneself.

13. A worker should feel some responsibility to do a decent job, whether or not the supervisor is around.

\* 16. There is nothing wrong with doing a poor job at work if one can get away with it.

32. There is nothing as satisfying as doing the best job possible.

36. One who feels no sense of pride in one's work is probably unhappy.

\* 43. Only a fool worries about doing a job well, since it is important only that you do your job well enough not to get fired.

48. One should feel a sense of pride in one's work.

52. The most important thing about a job is liking the work.

53. Doing a good job should mean as much to a worker as a good paycheck.

\* Indicates items which were reverse scored.

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