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ABSTRACT

In response to input from the employment and training community, the Department of Labor's Assessment and Research Development Program (ARDP) and its state partners have developed two self-assessment work value instruments to be incorporated into career exploration and counseling programs. Computerized multiple rank-order and paper-and-pencil card-sorting instruments based on the Theory of Work Adjustment (R. V. Dawis and L. H. Lofquist, 1984) were developed. Ninety-six employment service clients completed one of the work value instruments during a pilot study. Four subsequent studies, involving 1,605 employment service customers and students from vocational/technical and junior colleges, were conducted to examine the psychometric properties of the instruments. Relationships between scores and the new work value instruments and scores on the Minnesota Importance Questionnaire (J. B. Rounds, G. A. Henly, R. V. Dawis, L. H. Lofquist, and D. J. Weiss, 1981) will be examined to determine construct validity. Respondent reaction data and administration times for the pilot test and the main studies are reported here. (Contains three tables and six references.) (SLD)

The Development of Two Self-Assessment Work Value Instruments

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Abstract

In response to input from the employment and training community, the Department of Labor's Assessment and Research Development Program (ARDP) and its state partners have developed two self-assessment work value instruments to be incorporated into career exploration and counseling programs. Computerized multiple rank-order and paper-and-pencil card-sorting instruments based on the Theory of Work Adjustment (TWA; Dawis & Lofquist, 1984) were developed. Ninety-six employment service clients completed one of the work value instruments during a pilot study. Four subsequent studies, involving 1,605 employment service customers and students from vocational/technical and junior colleges, were conducted to examine the psychometric properties of the instruments. Relationships between scores on the new work value instruments and scores on the Minnesota Importance Questionnaire (MIQ; Rounds, Henly, Dawis, Lofquist, & Weiss, 1981) will be examined to determine construct validity. Respondent reaction data and administration times for the pilot test and the main studies are reported here.

Development of Two Self-Assessment Work Value Instruments

In response to input from the employment and training community, the Department of Labor's Assessment and Research Development Program (ARDP) and its state partners have developed two self-assessment work value instruments to be incorporated into career exploration and counseling programs. A description of the two instruments and results from the pilot study will be reported here.

The new instruments are intended to be used with other assessment tools being developed by the ARDP. Two of these tools are the Ability Profiler, a measure of skills and abilities and the Interest Profiler, a measure of vocational interests. These three measures, the Ability Profiler, Interest Profiler, and the work value instruments, are directly linked to the Occupational Information Network (O*NET), the new automated replacement for the Dictionary of Occupational Titles. O*NET is a comprehensive database that identifies and describes worker skills and training requirements for jobs across the country in all sectors of the economy. O*NET will replace the Dictionary of Occupational Titles as the nation's primary source of occupational information. The O*NET database enables users to focus on important information about job requirements and worker skills.

The work value instruments will be used to provide individuals with information about the relative importance of various occupationally relevant needs and values to them, and about the extent to which their needs and values match the needs and values likely to be satisfied by various occupations.

There is little agreement about the appropriate definition of values. As noted by Dawis (1991, p. 839), however, there is "agreement of sorts" upon the following functional definition: ". . .values function as standards, or criteria, by which persons evaluate things and . . . such evaluation is on the basis of the relative importance of things to the person."

Needs and values are similar constructs. Dawis and Lofquist (1984) suggested that needs are more molecular than values. They defined needs as "an individual's requirement for a reinforcer at a given level of strength" (p. 17), and they define values as second-order needs. Thus, "values represent common elements in need dimensions and are construed, in the factor analytic sense, as reference dimensions for the description of needs" (Dawis, 1991, p. 838).

Values and interests are also similar concepts. Dawis (1991) noted that values differ from interests in that values emphasize importance/unimportance whereas interests refer to liking/disliking. Moreover, items constituting measures of values typically focus on ends (e.g., goals, standards), whereas interest items typically focus on means (e.g., activities).

The new work value measures are based on the Minnesota Importance Questionnaire (MIQ; Rounds, Henly, Dawis, Lofquist, & Weiss, 1981). The MIQ was designed for use in research on and application of the TWA. The TWA is a comprehensive model of vocational adjustment based on the concept of correspondence between the individual and the environment. The MIQ is an ipsative measure of an individual's work needs and values. There are two paper and pencil forms of the MIQ,[1] a paired comparison form and a multiple-ranking form. Persons completing the MIQ are asked to indicate the relative importance, to them, of 21

[1] Early research on a 5-point Likert form produced negatively skewed distributions of scale scores and yielded high intercorrelations among scale scores and was subsequently dropped from use (Gay et al., 1971).

vocationally-relevant need-reinforcers (e.g., receiving recognition, having steady employment). The need-reinforcer dimensions measured by the MIQ have been found to be related to job satisfaction (Gay, Weiss, Hendel, Dawis, & Lofquist, 1971). These 21 needs can be grouped into six factor-analytically derived value dimensions. Table 1 shows the 21 needs and the six value dimensions into which they can be grouped.

As noted previously, the work value instruments are linked directly to the O*NET. O*NET contains an occupational values section, consisting of 21 statements of needs and values that are very similar to those on the MIQ.[2] The work value instruments contain items virtually identical to the need and value items in O*NET, except with different item stems. O*NET item stems state: "Workers on this job...", whereas work value instrument item stems state: "On my ideal job..." The use of virtually identical items on the O*NET and the work value instruments will make linking assessment results with occupational information straightforward. Clients will be able to match information about themselves directly to parallel information about jobs.

The Development of the Work Value Instruments

Two work value instruments (a computerized version and a paper-and-pencil card-sorting version) were developed. The computerized version is identical in format to the multiple ranking form of the MIQ, but has an additional advantage of an on-site, automated scoring system. Like the MIQ, the computerized version contains 21 need reinforcer statements with wording similar to the original MIQ. The card-sorting version employs card-sorting methodology to engage respondents in the task. It is simple to complete, self-scored, and can be self-interpreted.

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[2] The O*NET occupational values component was modeled after the Minnesota Job Description Questionnaire (MJDQ). The MJDQ is a measure of the work environment in the same need/value terms as the MIQ.

Need-reinforcer statements in the two forms are identical with one exception. Item 16 was dropped from the card-sorting version to facilitate self-scoring. Table 2 shows the work values items and wording changes from the MIQ along with reasons for those changes. The computerized version will allow customers to compare their patterns of values with the patterns of values satisfied by various occupations, the card-sorting version will allow customers to compare their most important values or needs to the values or needs most likely to be satisfied by various occupations.

Both the computerized and card-sorting versions are designed for self-administration and self-interpretation. However, this does not preclude counselor assistance with administration and/or score interpretation. The work value instruments can also be administered in group settings.

A sixth grade reading level is required to complete the work value instruments. A broad spectrum of clients can use them, from those who possess very little education or work experience to those with extensive work experience and education. The work value instruments can also be used by individuals who display a wide range and level of abilities and interests. The measures have been tested on a diverse group of individuals including employment service clients, vocational/technical schools, college students, and dislocated workers. Individuals attempting to complete the instruments should be at least 16 years of age.

The Computerized Version

The computerized version was developed to take advantage of current computer technology in test administration and scoring and to interact directly with the O*NET database.

It will permit comparisons between customers' need profiles and the occupational reinforcer patterns of various occupations. There are two sections in the computerized form, a *ranking* section and *rating* section. In the ranking section, respondents are presented the 21 need reinforcer statements in balanced incomplete blocks of five. The respondents are asked to rank the five statements in each group as to their importance in their ideal job. After choosing a statement, respondents will be asked to choose which of the remaining statements is most important, and so on, until all statements within a block have been ranked, and all blocks have been completed. Each stimulus is paired with every other statement once.

In the rating section, respondents are asked to consider each statement and decide whether it is important to have in their ideal job. For example, one statement reads: "On my ideal job it is important that I could do things for other people." Individuals respond either yes or no to each of the 21 statements. The rating section functions to eliminate equal means thereby partially "de-ipsatizing" the instrument. This mechanism allows the items chosen as "important" to provide an anchor, or "zero point", that defines high and low ratings for each respondent. When the instrument is used operationally, work values scores will be reported on a -1.00 to +3.00 scale. In addition, Pearson product moment correlations will be computed between the respondent's need profile and the occupational reinforcer profiles for various occupations (measured by the O*NET), providing a commensurate measure of person-work environment fit (Rounds, Dawis, & Lofquist, 1978).

In addition to a list of occupations with profiles matching their need profiles, respondents will also be provided scores on value scales computed by averaging the sum of scores on

need-reinforcer items. These factor analytically derived values are named Achievement, Conditions of Work, Status, Altruism, Management and Autonomy (Doering & Kaspin, 1988).

The Card-sorting Version

The card-sorting version was designed to be suitable for self-administration and self-scoring. This instrument was developed for use by individuals who do not have access to personal computers or who are uncomfortable using computer media. Respondents are presented a set of 20 cards; with each card containing one of the need reinforcer statements. Respondents sort four cards into each of five piles according to the importance of the reinforcers to them on their ideal jobs. The cards are placed on a separate "card-sorting template." The score for each statement is the number of the pile (one through five, five representing most important) in which the card was placed. Respondents record the number for each card in the appropriate box on the score sheet. The work value scores are figured by summing and multiplying the individual scores in each box. Six work values scores are reported on a 30-point relative scale. The scores on the six work values can range from 6 to 30. When the instrument is used operationally respondents will be able to use these scores to identify occupations which are likely to satisfy the needs they deem most important.

The Work Value Studies

A pilot test and four studies were conducted to determine user reactions and examine the psychometric characteristics of the two work value instruments. The purposes of the pilot test and each of the four studies are briefly described below.

- Pretest. Conducted to examine the comprehensibility of instructions and items, testing

time associated with both versions of the work values instrument, and ease of scoring of the card-sorting version.

- Study 1. Conducted to examine the psychometric properties of both instruments. Factor analyses will assess the dimensionality of each scale. In addition, administration issues such as ease of use, administration time, and respondent reactions to the inventory will be investigated. Score distributions and subgroup differences will also be examined.
- Study 2. Conducted to investigate the work value instruments' test-retest reliability, internal consistency, and alternate form reliability. Test-retest reliability is of particular importance for the need scales, because each need scale is equivalent to a single item.
- Study 3. Conducted to inspect the factor structures of the original MIQ and the work value instruments for construct similarity. Confirmatory factor analysis will be used to examine the factor structure of the MIQ and the work value instruments. Factor loadings of the items on the MIQ will be estimated, then constrained at the pre-estimated values of the six common MIQ factors. The work value items will then be estimated to fit the factor structure of the MIQ. This statistical technique will help to maintain a strong link with the large body of research on the MIQ and the TWA, despite slight changes in the wording of some items on the new instruments.
- Study 4. Conducted to derive occupational reinforcer patterns (ORPs) for occupational units. Eventually, the ORPs derived via O*NET data will be used as the basis for score interpretations on the work value instruments. However, because the work value instruments will be operational before O*NET ORPs are available, interim ORPs are being

developed as part of this project. Those profiles will be used in work values instrument score interpretation.

Data from the four studies (N = 1,605) are currently being analyzed. The results from the pilot test, as well as participant reaction data from Studies 1 to 3, are presented here.

Pilot Test

Method

Participants and Procedure. A reaction questionnaire was administered to participants who completed the work value instruments in the pilot test (N = 96; n = 48, computerized; n = 48 card-sorting) and to a subset of participants in Studies 1 to 3 (N = 125; n = 59, computerized; n = 66, card-sorting). Administrators were instructed to administer the questionnaire to a sample of respondents just after they had completed the first work values instrument for which they were scheduled.

Results

For ease of interpretation, the results on the questionnaire items for both the pilot test and the main research data collections are shown in Table 3. Note that minor changes were made to the instruments prior to their administration in the main study. Several of these changes were a direct result of the reactions from the pilot test participants.

Computerized Version. In general most respondents completed the task without difficulty. Some who had never used a computer occasionally had basic questions about the keyboard or made basic mistakes (e.g., "what is a space bar," and "I typed E-S-C instead of escape"). Keyboard training has been modified to minimize such errors. Some respondents

expressed frustration at the redundancy of the items. Comments from the main study indicated that the results from the computerized version were useful and tended to confirm individual self-perceptions. In addition, most respondents felt the activity was engaging and enjoyable. The average time to complete the computerized version was 17 minutes, with a range of 8 to 30 minutes.

Card-Sorting Version. Most respondents completed the task without difficulty. Mathematical errors in score computation were the most common problem. Some respondents expressed frustration with having to rank some cards on the lower end of the importance scale. As with the computerized version, respondents who completed the card-sorting version indicated the results were useful and tended to confirm self-perceptions. The average time to complete the card-sorting version was 15 minutes.

Discussion

The work value instruments appear to be working well from the perspectives of the respondents. Based on respondent reactions to the pilot test, the test developers made minor adjustments to both instruments. Overall, these changes appear to have improved already positive respondent reactions to instruction clarity (computerized and card-sorting), ease of the task (computerized and card-sorting), and adequacy of keyboard training (computerized). In addition, most respondents found the assessment activity engaging and enjoyable. Moreover, respondents indicate they find the scores to be accurate depictions of their self-perceptions. This latter point provides valuable evidence regarding the face validity of the work value instruments. This is important because these instruments are designed to be used without the assistance of

vocational/occupational counselors. In addition, confidence in the instruments may motivate clients to use the other assessment tools being designed to help in the career exploration process.

There are many areas of career exploration where individuals may benefit from the assessment of work values. The work value instruments may be used by either the individual or in conjunction with vocational counseling.

Data analyses on Studies 1 through 4 should be completed by September 1996. Pilot implementation of the work value instruments is planned for December 1996.

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Table 1
Theory of Work Adjustment Needs and Value Dimensions

Needs	*Description*	*Value Dimensions*
Ability Utilization Achievement	The importance of an environment that encourages accomplishment	Achievement
Activity Independence Variety Compensation Security Working Conditions	The importance of an environment that is comfortable and not stressful	Comfort [Conditions of Work][1]
Advancement Recognition Authority Social Status	The importance of an environment that provides recognition and prestige	Status
Co-Workers Social Service Moral Values	The importance of an environment that fosters harmony and service to others	Altruism
Company Policies and Practice Supervision, Human Relations Supervision, Technical	The importance of an environment that is predictable and stable	Safety [Management][1]
Creativity Responsibility Autonomy	The importance of an environment that stimulates initiative	Autonomy

From Dawis (1991), p. 849.

1- Labels in brackets [ ], denote labels used on the work value instruments.

Table 2
Proposed Items for the Work Value Instruments with Wording Changes.

Work Values Items	*MIQ Items*	*Reasons for Changes Made*
1. On my ideal job it is important that I make use of my abilities.	1. On my ideal job it is important that I could do something that makes use of abilities.	MIQ, MJDQ nonparallel. Follow MJDQ and O*NET
2. On my ideal job it is important that the work could give me a feeling of accomplishment.	2. On my ideal job it is important that the job could give me a feeling of accomplishment.	Work consists of tasks that are done on a job. It is more clear and less redundant.
3. On my ideal job it is important that I could be busy all the time.	3. On my ideal job it is important that I could be busy all the time.	
4. On my ideal job it is important that the job would provide an opportunity for advancement.	4. On my ideal job it is important that the job would provide an opportunity for advancement.	
5. On my ideal job it is important that I could give directions and instructions to others.	5. On my ideal job it is important that I could tell people what to do.	O*NET change
6. On my ideal job it is important that I would be treated fairly by the company.	6. On my ideal job it is important that the company would administer its policies fairly.	O*NET change
7. On my ideal job it is important that my pay would compare well with that of other workers.	7. On my ideal job it is important that my pay would compare well with that of other workers.	
8. On my ideal job it is important that my co-workers would be easy to get along with.	8. On my ideal job it is important that my co-workers would be easy to make friends with.	O*NET change
9. On my ideal job it is important that I could try out my own ideas.	9. On my ideal job it is important that I could try out some of my own ideas.	MIQ/MJDQ items non-parallel. Follow MJDQ wording.
10. On my ideal job it is important that I could work alone.	10. On my ideal job it is important that I could work alone on the job.	Reduce redundancy

Work Values Items	*MIQ Items*	*Reasons for Changes Made*
11. On my ideal job it is important that I would never be pressured to do things that go against my sense of right and wrong.	11. On my ideal job it is important that I could do the work without feeling that it is morally wrong.	O*NET change
12. On my ideal job it is important that I could receive recognition for the work I do.	12. On my ideal job it is important that I could get recognition for the work I do.	O*NET change MIQ/MJDQ items non-parallel. Follow MJDQ wording.
13. On my ideal job it is important that I could make decisions on my own.	13. On my ideal job it is important that I could make decisions on my own.	
14. On my ideal job it is important that the job would provide for steady employment.	14. On my ideal job it is important that the job would provide for steady employment.	
15. On my ideal job it is important that I could do things for other people.	15. On my ideal job it is important that I could do things for other people.	
16. On my ideal job it is important that I would be looked up to by others in my company and my community.	16. On my ideal job it is important that I could be "somebody" in the community.	O*NET change
17. On my ideal job it is important that I have supervisors who would back up their workers with management.	17. On my ideal job it is important that my boss would back up the workers (with top management).	O*NET change
18. On my ideal job it is important that I have supervisors who train their workers well.	18. On my ideal job it is important that my boss would train their workers well.	O*NET change
19. On my ideal job it is important that I could do something different every day.	19. On my ideal job it is important that I could do something different every day.	
20. On my ideal job it is important that the job would have good working conditions.	20. On my ideal job it is important that the job would have good working conditions.	
21. On my ideal job it is important that I could plan my work with little supervision.	21. On my ideal job it is important that I could plan my work with little supervision.	

Notes: (1) MIQ denotes Minnesota Importance Questionnaire. (2) MJDQ denotes Minnesota Job Description Questionnaire. (3) O*NET denotes Occupational Information Network.

Table 3.
Participant Reaction Results from Pilot Study and Studies 1 to 3

Survey Questions	Percent Positive Responses	
	Computer Version	Card-sorting Version
How clear were the instructions on the survey? *(Very clear)*	96/98	90/94
Did you find the rankings easy to do? *(Yes)*	92/95	92/96
Was the explanation of which keyboard key to use clear? *(Very clear)*	98/100	
Was the explanation of the sorting task clear? *(Very clear)*		92/97
At any time...did you have difficulty knowing what to do? *(No)*	81/92	
Was the survey easy to score? *(Yes)*		95/98
Did you get tired or bored at any time during the survey? *(No)*	85/83	100/82
Are the results of the survey consistent with how you would describe yourself? *(Yes)*	86/80	87/77
Have you ever taken a computerized survey before? *(Yes)*	6/5	
Have you ever performed a sorting task like this one before? *(Yes)*		7/9
Did you ever get frustrated with the task? *(No)*		90/83
Were the keyboard keys easy to use? *(Yes)*	98/100	
Did you have difficulty changing your rankings when you wanted to? *(No)*	85/95	

Notes: 1) The positive response appears in italics following the survey question.
2) The Pilot Study results are listed before each slash (/) and the Study 1 to 3 results are listed after the slash.
3) Cells were left empty if the question did not apply to that particular version of the work value instruments.
4) Pilot Study: N=96 (n=48 computer; n=48 card-sorting). Studies: N=125 (n=59 computer, n=66 card-sorting).

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