

VALPAR COMPONENT WORK SAMPLES: A CORRELATION ANALYSIS

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ABSTRACT: This study focused on the inter-correlations of the Valpar Component Work Sample (VCWS) number 1, 4, 5, 6, 8, 9, and 11. High correlations were expected between the work samples having similar requirements of physical activities and/or relating to common worker trait groups. A Pearson Product - Moment correlation analysis was applied using data obtained from vocationally handicapped individuals undertaking vocational assessment. Although commonalities exist between selected VCWS, tasks specificity of each VCWS produced findings of medium to low correlations.

The Labor Market encompasses a variety of occupational groups, each comprising composite profiles of required vocational skills. For the vocational evaluator, these profiles represent the basis for conducting vocational assessment. Because qualification factors differ between and within groups of occupations, the evaluator must determine the appropriateness of using assessment instruments that measure abilities related to a particular occupation or applicable to groups of occupations. Among the various tools used in vocational evaluation, work sample systems have been designed to accommodate a single or cluster trait approach to assessment.

The Valpar Component Work Samples (VCWS) are intended to measure fundamental abilities recurrent in several groups of occupations. Developers of the Valpar Component series state that these work samples assess "those worker characteristics which are found to be basic indicators of success in numerous job families" (Brandon, Button, Rastatter & Ross, 1974, p. 1).

But the VCWS have largely been regarded as non-interdependent assessment tools. Botterbush's (1980) review of commercial vocational evaluation systems emphasized the fact that "Valpar is a group of independent work samples and not a system" (p. 75). Consequently, Botterbush (1980) questioned the work samples' relatedness to occupational groups.

Although Brandon, et al. (1974) recommended that the VCWS be incorporated with work sample systems extant, Valpar-Spective (1979) identified essential components which, when combined, consolidate vocational information. Thus, the VCWS can potentially be integrated to form a system of vocational evaluation.

Such integration can be shown from the commonalities that exist for the VCWS numbers 1, 4, 5, 6, 8, 9, and 11. Excepting work sample 5, Clerical Comprehension and Aptitudes, which incorporates several related and often concurrent office duties,

the majority of the VCWS measure skills such as manual dexterity and motor coordination. In some cases, several work samples evaluate abilities related to common worker trait groups.

The purpose of this study was to analyze the inter-correlations of the aforementioned VCWS. It was expected that work samples sharing common factors and worker trait groups would produce consistent high correlations.

Method

Subjects

Data were obtained from 400 disabled individuals undertaking a vocational assessment at the Resource Development Center, Calgary, Alberta, Canada. Depending on the VCWS administered sample sizes ranged from 38 to 397 clients.

Demographic variables showed the following client characteristics: 90% of the clients were of Caucasian descent with a mean age of 26.7 years, a men/women ratio of approximately 2:1 and a reported education level of 10 years.

Client disabilities were grouped into four categories. In category one, clients were diagnosed as emotionally/psychiatrically disabled. A second category comprised those clients experiencing some type of learning disability in school systems. A third category constituted those clients medically diagnosed as having physical dysfunctions. A fourth category (miscellany) was given to clients who did not easily fit the above disability grouping but were deemed handicapped by nature of having inordinate difficulties procuring or staying with employment. In order, the proportions of clients by disability categories were 40%, 25%, 12% and 23% for the emotional, learning, physical and miscellany groups.

Instrumentation

Seven Valpar Component Work Samples were used in this study. The work samples were administered following the directions and procedures outlined in the Valpar Manuals.

VCWS 1 - Small Tools (mechanical). Performance is scored on speed and accuracy.

VCWS 4 - Upper Extremity Range of Motions. Performance is scored on speed.

VCWS 5 - Clerical Comprehension and Aptitudes. Performance is scored on speed and accuracy.

VCWS 6 - Independent Problem Solving. Performance is scored on speed and accuracy.

VCWS 8 - Simulated Assembly. Performance is scored on the number of assemblies completed within a time interval of 20 minutes.

VCWS 9 - Whole Body Range of Motions. Performance is scored on speed.

VCWS 11 - Eye-Hand-Foot Coordination. Performance is scored on speed and accuracy.

Results

The Pearson Product - Moment correlation analysis indicated findings of medium to low correlations between the VCWS (see Table 1).

Highest correlation was obtained between time scores of the VCWS 4 Upper Extremity Range of Motions. This work sample correlated moderately with the VCWS 1, 8, and 9. Other medium correlations were noted between VCWS 8 and 9 and VCWS 11 time and points scores.

The Simulated Assembly and the Eye-Hand-Foot Coordination correlated Negatively with all other VCWS having time measurements.

The VCWS 6 Problem Solving and 11 Eye-Hand-Foot Coordination correlated weakly with all other VCWS.

Table 2 denotes common occupational groups related to VCWS.

Table 1

Correlation Coefficients Between Selected VCWS

VCWS **	#4				#6 PRST	#8 SAP	#9 WBT	#11	
	BET	DOM	OTH	DIS				EHFT	EHFP
#1 - STTT	.40	.62	—*	.61	.38	-.46	.49	-.29	—*
#4	BET	.87	.90	.65	.38	-.62	.64	-.16	-.37
	DOM		.58	.53	.32	-.57	.54	-.20	-.35
	OTH			.61	.36	-.54	.58	-.12	-.33
	DIS				.30	-.56	.64	-.17	-.42
#6 - PRST						-.36	.19	—*	—*
#8 - SAP							-.57	.18	.36
#9 - WBT								-.18	-.43
#11 - EHFT									.67
VCWS **	#5								
	TEL	MAST	FILT	BKT	TYPW				
#6 - PRST	—*	.41	.51	.46	-.37				

Note: * - = Not significant, $p > .05$

** VCWS: STTT - Small tools assembly time; BET - Time for both hands; DOM - Time for dominant hand; OHT - Time for other hand; DIS - Disassembly time; PRST - Problem solving time; SAP - Assembly points; WBT - Whole body total time; EHFT - Eye-hand-foot total time; EHFP - Eye-hand-foot total points; TEL - Telephone messages; MAST - Mail sorting time; FILT - Filing letters time; BKT - Bookkeeping time; TYPW - Typing words.

Table 2

Common Occupations Related to Selected VCWS *

	D. P. T.
VCWS #4 and #6	
- Inspecting and Stock Checking	.382, .384, .387, .484, .487
VCWS #4 and #8	
- Sorting, Inspecting, Measuring and related work	.484, .485, .487, .584, .585 .587, .683, .684, .685, .687
VCWS #5 and #6	
- Shipping Clerk I	.138
- Office Helper	.878
- Parcel Post Clerk	.388
- Mail Clerk	.588
- Credit Reporter	.368
- Counter Clerk	.368
VCWS #8 and #9	
- Driving - Operating	.883
VCWS #8 and #11	
- Laundry Laboring	.887
- Injecting-Molding-Machine Operator	.782
- Conveyor-Line Operator, Automatic	.782
- Continuous-Towel Roller (Laundering)	.885
- Injecting-Molding-Machine Tender	.885
VCWS #8, #9 and #11	
- Manipulating	.884

Note: * Source: Brandon et al. (1974)

From the arrangement of work samples reported in Table 2, correlation remained strongest between VCWS 4 and 8 and VCWS 8 and 9.

Discussion

The VCWS small tools, upper extremity range of motions, simulated assembly and whole body range of motions share the importance of accurate eye/hand coordination, precise manual dexterity, awareness of spatial relationships, tactile judgement, and prolonged physical stamina. Although commonalities exist among these work samples, task specificity between each component differ considerably. The VCWS upper extremity range of motions examines proficiency of dominant vs other hand. The VCWS simulated assembly requires visual tracking. The various postures assumed by a client on the VCWS whole body range of motions extend the physical requirements to ability and balance of motions. By itself, the VCWS 11 eye-hand-foot coordination measures simultaneous coordinated reactions.

The low correlation obtained between the VCWS 6 problem solving and the other VCWS refers to notable differences of material formats, perceptual and learning processes which define the uniqueness of the task.

Intrinsic factors such as task procedures, interaction of skills, focus of productivity (speed vs accuracy) and work behaviors pertaining to each work sample denote particular arrangement of performance requirements. The arrangement of factors clarify the distinctions between the VCWS. Thus, some VCWS supplement the vocational information gathered from other VCWS in the assessment of qualification factors for related occupations.

Still, the findings of medium to low correlations signify variations of clients' performance on those VCWS. Such variations imply that client performances on those VCWS relating to common worker trait groups

are to a certain extent, inconsistent. Consequently, additional assessment covering the occupational groups' composite skills would be required to ascertain a client's qualifications for such type of employment.

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