Summary of Research:

The Work Team Simulator

Management & Personnel Systems, Inc.
Walnut Creek, CA 94595
925-932-0203

VALIDITY OF THE WORK TEAM SIMULATOR

The Work Team Simulator consists of five problem scenarios. Each scenario involves some interaction or problem situation that occurs among team members and/or team members and their supervisor. For each problem scenario, candidates are asked three questions. They are provided three or four lines in a test booklet format to enter their response, consisting of what they would say or do in the problem scenario.

The study reported below for Columbia Gas was conducted by Management & Personnel Systems, Inc. (MPS). The Tampa Electric study was conducted by Tampa Electric Psychologist, Dr. Bill Waldron who has supplied us a summary of his research results.

Columbia Gas Study Conducted by MPS

Subjects consisted of employees involved in the installation, repair or servicing of gas lines, as well as some lower-level clerical or white collar employees involved in scheduling or other support activities. Employees were encouraged to see themselves as a team with a common mission.

Ratings on five skills were supplied by immediate and next-higher-level supervisors of work team members. The five skills were: Teamwork, Leadership/Group Decision Making, Interpersonal Relations, Planning & Organizing, and Oral Communications.

Ratings on the five skills were summed to form an overall measure of job success. Two additional "overall" measures were obtained by asking raters to rate candidates on their overall performance and their overall potential for success in the organization.

The results of this study indicated that the Work Team Simulator has significant validity in predicting each of the five skills as well as overall success and overall potential.

Table 1 gives the results for each rater on the overall measures of performance. Table 2 consists of the validity coefficients obtained when ratings made by each rater were summed. Tables 3 and 4 provide the obtained validity coefficients for each of the five skills that were rated by the immediate and next-higher-level supervisors.

Table 5 provides estimated true validity coefficients for the overall measures of performance based on the sum of the ratings made by the two raters (i.e., based on data contained in Table 2). The estimates are based on an assumed criterion reliability of .60 (consistent with reported research). As will be noted, the estimated true validity coefficients are quite substantial, indicating that the Work Team Simulator has very high utility as an employee selection device. In short, its use should significantly improve the selection process.

TABLE 1
OBTAINED VALIDITY COEFFICIENTS FOR WORK TEAM SIMULATOR

RATING	OBTAINED COEFFICIENT	DESCRIPTION OF CRITERION VARIABLE
Overall Performance	**.43*** (n = 41)**	**Rating of Overall Performance by immediate supervisor**
Overall Potential	**.34* (n = 41)**	**Overall Potential rating by immediate supervisor**
Overall: Sum of 5 Skills	**.39*** (n = 41)**	**This is a sum of ratings on five skills, by immediate supervisor**
Overall Performance	**.21 (n = 37)**	**Rating of Overall Performance by 2nd level supervisor**
Overall Potential	**.28* (n = 37)**	**Overall Potential rating by 2nd level supervisor**
Overall: Sum of 5 Skills	**.29* (n = 37)**	**This is a sum of ratings on five skills, by 2nd level supervisor**

* p < .05 ** p < .01 *** p < .005

TABLE 2
VALIDITY COEFFICIENTS BASED ON SUMMING RATERS 1 AND 2

Overall Performance Rating	.41** N = 36
Overall Potential Rating	.47*** N = 37
Sum of Rating on 5 skills	.47*** N = 37

* p < .05 ** p < .01 *** p < .005

TABLE 3
OBTAINED VALIDITY COEFFICIENTS FOR FIVE SKILLS
PERFORMANCE RATINGS BY IMMEDIATE SUPERVISOR

Skill	Validity	
Teamwork	**.38****	**N=41**
Leadership/Group Decision Making	**.34***	**N=41**
Interpersonal Relations	**.19**	**N=41**
Planning & Organizing	**.29***	**N=41**
Oral Communications	**.44****	**N=41**

* p < .05 ** p < .01 *** p < .005

TABLE 4
OBTAINED VALIDITY COEFFICIENTS FOR FIVE SKILLS
PERFORMANCE RATINGS BY NEXT-HIGHER-LEVEL SUPERVISOR

Skill	Validity	
Teamwork	**.32***	**N=38**
Leadership/Group Decision Making	**.23**	**N=38**
Interpersonal Relations	**.16**	**N=38**
Planning & Organizing	**.28***	**N=38**
Oral Communications	**.32***	**N=38**

* p < .05 ** p < .01 *** p < .005

TABLE 5
ESTIMATED TRUE VALIDITY COEFFICIENTS
BASED ON SUMMING RATERS 1 AND 2

Overall Performance Rating	**.53**
Overall Potential Rating	**.61**
Sum of Ratings on 5 Skills	**.61**

Tampa Electric Company Study Conducted by Dr. Bill Waldron

Dr. Waldron researched the Work Team Simulator in conjunction with staffing a new power plant. Subjects were blue-collar employees. The organization was actively promoting the team concept and teamwork, and desired employees who could function effectively as team members.

Dr. Waldron used an Interaction Simulation as the criterion measure. The Interaction Simulation measured four skill areas: oral communications, listening, problem solution, and teamwork.

It was hypothesized that the Work Team Simulator would predict scores on the problem solution and teamwork skills. The results were confirmatory, as illustrated in Table 6.

TABLE 6
VALIDITY OF THE WORK TEAM SIMULATOR IN PREDICTING TWO CRITERION MEASURES

Skill	Validity
Problem Solution	**.37** N = 196**
Teamwork	**.33** N = 196**

** $p < .01$ *** $p < .005$

Estimated True Validity coefficients for these results are given in Table 7, once again based on an assumed inter-rater reliability coefficient of .60.

TABLE 7
ESTIMATED TRUE VALIDITY COEFFICIENTS IN PREDICTING TWO CRITERION MEASURES

Problem Solution	**.48**
Teamwork	**.43**

City of Bismarck (North Dakota) Study of Fire Fighters

Twenty-four fire fighters were selected over a period of approximately 10 years using the Work Team Simulator, a written test, and an interview. Scores on the Work Team Simulator were correlated with overall job performance ratings. All study participants had at least one year of experience on the job.

The obtained validity coefficient was .41 ($p < .05$). This coefficient was corrected for restriction in range using available score data and the resultant coefficient was .44. Reliability of the criterion measure was also available, hence the coefficient was corrected for unreliability in the criterion. The estimated true validity of the Work Team Simulator in predicting job performance as a fire fighter was found to be **.54**.

Other Correlational Validity Evidence

The Work Team Simulator was correlated with the MPS Customer Service Simulator and the Employee Reliability Inventory published by the Wonderlic Corporation. These results are provided in Table 8. Table 9 shows the results of correlating the Work Team Simulator with the nationally-validated entry fire fighter test published by CWH (www.cwhms.com).

TABLE 8

Correlations of the Work Team Simulator Test With The Employee Reliability Inventory (ERI) and The Customer Service Simulator Test

	WT1	WT2	WT	CSR1	CSR2	CSR	ERI
WT1	---	.36	.88	.31	.34	.36	.35
WT2		---	.76	.10	.36	.25	.49
WT			---	.27	.42	.38	.49
CSR1				---	.65	.91	.19
CSR2					---	.90	.28
CSR						---	.26
ERI							---

N = 18 Variables are specified below.

WT1	Work Team Simulator, Factor 1
WT2	Work Team Simulator, Factor 2
WT	Work Team Simulator Total Score
CSR1	Customer Service Simulator, Factor1
CSR2	Customer Service Simulator, Factor 2
CSR	Customer Service Simulator Total Score
ERI	Employee Reliability Inventory Total Score

TABLE 9

Correlations of the Work Team Simulator Test With CWH Entry Fire Fighter Test

Test	Work Team Simulator	CWH Entry Fire Fighter Test
Work Team Simulator	**---**	**.38***
CWH Entry Fire Fighter		**---**

* $p < .05$ (N=27)

Inter-Rater Reliability

The Work Team Simulator is scored according to highly explicit criteria developed by MPS. Two trained raters scored 48 Work Team Simulators. Total scores were correlated. The obtained inter-rater reliability was .97. While this value seems extremely high, it should be understood that earlier research by MPS on the use of objective scoring systems for assessment exercises and simulation tests, principally research on the General Management In-Basket, has found inter-rater reliabilities on the order of .95 for far more complex tests than the Work Team Simulator.

The approaches innovated by MPS for these kinds of tests have been proven to work, routinely leading to inter-rater reliability coefficients that were considered virtually impossible as recently as the mid 1980's.

Summary

The Work Team Simulator has demonstrated significant validity, with substantial obtained and estimated true validity coefficients. The Work Team Simulator is designed to be content valid for organizations that desire employees who demonstrate the ability to function effectively as a member of a team. This philosophy works to the detriment of candidates who demonstrate a pattern of desiring close, autocratic supervision in which there is a high degree of structure. The research results to date suggest that employees who work more effectively in a participative framework that seeks to empower employees, offering them greater decision making capabilities and more involvement in solving work-related problems, are perceived as more effective on the job. The research also provides support for the Work Team Simulator in effectively identifying these individuals.