

## PREDICTIVE VALIDITY

### SUMMARY

The assessment of the predictive dimension relies upon the judgment of the expert panel. Of the 50 expert professionals available, 39 believed themselves positioned to judge the predictive accuracy of the TeamAnalysis™ methodology. The experts reported that in their administrations the number of inaccurate reports was zero (0%). The predictive validity of the instrumentation and methodologies is judged to be high.

**P**redictive validity is a form of criterion validity. Criterion validity tests whether the relationships identified by a theory are actually evidenced in the "real world" in a way than can be objectively tested. In other words, a "criterion" is some type of standard on which a judgment of a relationship can be based.

Predictive validity is concerned with "evidence of criterion-related validity in which criterion scores are observed at a later date" (Canadian Psychological Association, 1996). This contrasts with concurrent validity, which concerns "evidence of criterion-related validity in which predictor and criterion information are obtained at approximately the same time." In other words, predictive validity is concerned with the ability of a theory to predict what will happen in the future.

The Survey instrument does not lend itself to direct test of predictive validity in field settings. This is because Organizational Engineering theory maintains that the human is a rational animal capable of changing in response to the environmental conditions he or she confronts. Therefore the individual report produced by the survey

instrument is not a "predictor" of long run behavioral preferences. Behaviors in particular circumstances also cannot be "predicted" because most people have at least some access to all of the strategic options available (Salton, 1996, p.52). The particular strategic option chosen depends upon the individual's interpretation of the particular situation.

However, an indirect test of predictive validity of the instrument is available. The theory "predicts" that strategic styles will be stable if the environment remains constant (Salton, 1996, p. 61). In other words, people are unlikely to change a successful strategic style unless their personal environment signals that the elected style may no longer be applicable. Therefore, in the absence of macroeconomic or social changes, the theory would predict that a large population of people would remain constant in their strategic style choices.

Appendix 1 demonstrates that no evidence for differences were found for the strategic profile distribution of the database population for the years 1994 through 1999. The macroeconomic and social condition of the United States, from whose population the database is primarily drawn, was roughly stable during this period. Therefore, 1995 served as an accurate "predictor" of 1996, which then served as a "predictor" of 1997, and so on. This finding can be considered evidence that the predictions made by the theory for the behavior of individuals are valid over the time period investigated.

TeamAnalysis™ is methodology that consolidates individuals to obtain representations of entire groups as single entities. The report is entirely mechanical and requires no knowledge of a group's purpose or circumstances beyond the strategic style profiles of the members. Therefore, the report can be seen as direct extension of the Organizational Engineering theory at a group level.

A fundamental difficulty of assessing the predictive validity of the TeamAnalysis™ report is that it is prescriptive. After specifying the strengths and vulnerabilities of a group, the report offers suggestions on how vulnerabilities might be offset and strengths magnified. To the extent that the group accepts these recommendations, the "natural" structural inclinations of the group are voided or redirected.

Further complicating matters, different groups adopt the recommendations to different degrees. Even those recommendations accepted are often modified to better accommodate local conditions that are unknown by the computer generating the report.

While a definitive judgment based on objective data is unattainable in field settings, an informed judgment can be made. Some teams substantially ignored the recommendations and proceed following their "natural" strategic inclinations. In these teams, the structural conditions outlined in the TeamAnalysis™ would be "predicted" to persist. Thus, these groups can be seen as offering an opportunity for predictive validation.

In addition, the recommendations made in the analysis are definitive. They typically define what is being proposed, why it is proposed, and the probable outcome of implementing the recommendation. Therefore, a skilled observer is positioned to make a reliable judgment on the predictive validity of the methodology, even in the case where recommendations are adopted by the team.

The foregoing observations suggest that a reliance on the judgment of the expert panel would be well founded. Its members are physically present in the field setting and are often present at group meetings. They are positioned to judge the degree of adoption of the recommendations. They are also typically situated to witness the behavior of the group over time. Therefore, expert judgments on the predictive validity of the TeamAnalysis™ can be reasonably relied upon as indicative for purposes of this study.

To assess the predictive validity of the TeamAnalysis™ the members of the expert panel were asked this question:

How good would you say the TeamAnalysis™ report predicted the behavior of the group into the future? Was it:

*Highly Accurate* \_\_\_\_\_  
*Reasonably Accurate* \_\_\_\_\_  
*Inaccurate* \_\_\_\_\_

Of the total of 50 experts available, 11 believed themselves unable to make accurate judgments based on nonuse, their positioning or

because of their degree of participation with the groups involved. The findings from this inquiry among the 39 experts positioned to make a judgment are displayed in Table 13.

Table 13

**EXPERT PANEL EVALUATION OF  
TEAMANALYSIS™ PREDICTIVE VALIDITY**

TeamAnalyses Administered		
Experts Responding	39	100%
Judging Method Highly Accurate	31	79%
Judging Method Reasonably Accurate	8	21%
Judging Method Inaccurate	0	0%

The results of the expert judgment on the predictive accuracy of the TeamAnalysis are self-evident. Fully 100% of the experts judged the results to be accurate either on a "highly" or "reasonably" accurate basis.

Even a stringent view of the data produces strong evidence of predictive validity. The "reasonably accurate" category can be combined with the "inaccurate" on the grounds that "reasonably accurate" implies a degree of inaccuracy. A statistical test can then be applied to determine if the two categories—"highly accurate" and "inaccurate"—are distinct. In other words, we seek to dismiss the possibility that both categories are simply random variations within a single category (i.e., "reasonably accurate").

A two-sided, one-sample sign test of these responses yielded  $p = .0003$ . Thus it is reasonable to assert at the .001 rejection level that the "highly accurate" category represents a distinctly different judgment even under conditions of extreme interpretive stringency. In other words, it can be reasonably assumed that the 31 people who judged the results "highly accurate" saw something systematically different than the 8 people who judged the results "reasonably accurate."

Under conditions of the tests applied, the predictive validity of Organizational Engineering was found to obtain on both an individual and group level at the .05 significance level in those cases where such statistical estimates could be applied. The absolute level of agreement between the experts testifies to the existence of a systematically high degree of predictive validity.