VIEW: An Assessment of Problem Solving Style™

2005 Technical Update

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The *VIEW Technical Manual* (Selby, Treffinger, Isaksen, & Lauer, 2004a) provided data regarding the initial development and research on VIEW through mid-2004. The statistical data supporting VIEW were updated in late 2004 (Selby, Treffinger, Isaksen, & Lauer, 2004b; Treffinger, Selby, Isaksen, & Lauer, 2004). This update reports the results of additional data collection and analyses through December, 2005.

Descriptive Statistics

The most recent master database for VIEW (as of the end of December, 2005) included 10,151 subjects. Based on 8,488 subjects who provided age data, the mean age is now 39.8 (SD = 11.6; range, 12 - 82). The database includes 4,316 male respondents (42.5%), 5,723 female respondents (56.4%), and 112 respondents (1.1%) who declined to state their gender.

Table 1. below, summarizes several important descriptive statistics for each of VIEW's three dimensions: Orientation to Change (OC), Manner of Processing (MP), and ways of Deciding (WD), based on 10,151 responses.

Table 1: Summary of Descriptive Statistics for VIEW Dimension

Statistic	*OC*	*MP*	*WD*
Mean	74.6	30.1	34.6
Standard Deviation	15.8	9.2	8.5
Median	75.0	30.0	35.0
Mode	72.0	32.0	32.0
Minimum	18.0	8.0	8.0
Maximum	126.0	56.0	56.0
Skewness	-0.27	0.18	-0.15
Kurtosis	0.18	-0.27	-0.26
Standard Error of Measure	5.68	3.89	3.40

The correlations of VIEW's dimensions with age or gender are negligible. For age, the correlations are: Orientation to Change, r = -0.11 ($p<.01$); Manner of Processing, r = 0.03 (n.s.); and, Ways of Deciding, r = -0.04 (n.s.). Although the correlation for OC is statistically significant (probably by virtue of the large sample size), note that the magnitude of the relationship is very weak (accounting for 1.2% of the variance). For gender the correlations are: Orientation to Change, r = 0.14 ($p<.01$); Manner of Processing, r = 0.06 (n.s.); and, Ways of Deciding, r = -0.31 ($p<.01$). Again, the significant correlation between gender and OC is indicative of a weak relationship (accounting for only 2% of the variance). The relationship between gender and WD is somewhat stronger, but still accounts for only 10% of the variance; it suggests a slight tendency for female subjects to have a

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Person-oriented preference and for male subjects to have a Task-oriented preference. This result is similar to findings for other similar inventories in its direction as well as in its modest magnitude.

Intercorrelations Among VIEW's Dimensions

Table 2, below, presents the data regarding the intercorrelations among VIEW's three dimensions.

Table 2: Intercorrelations Among VIEW Dimensions

Variable	*OC*	*MP*	*WD*
OC	1.00	0.10**	0.10**
MP		1.00	0.08*

**=p<.001; *=p<.01

Once again, by virtue of the large size of the sample, these correlations attain statistical significance. Keep in mind, however: this indicates that the coefficients obtained are reliably different from zero; it suggests that the relationship reported is not a "chance" result. It does ***not*** indicate that there is a relationship of substantial magnitude or degree between the variables; we must assess the magnitude of the relationship independently. We hold that, while we can be *confident* in the results we obtained, the results indicate relationships between any two of the variables that are generally weak or negligible in magnitude. We believe, therefore, that these data support the conclusion that the three dimensions of problem-solving style assessed by VIEW are independent.

Distribution of Scores: Orientation to Change

Figure 1, at the top of the following page, presents the total distribution of scores for the OC dimension, based on the current master data set (N=10,151). This figure uses a histogram to enable us to inspect the distribution of the subject responses on the OC dimension visually, and helps us to interpret the central tendency and distributions of responses, to clarify the data that were presented numerically in Table 1. The distribution for OC, presented in Figure 1, shows a generally normal 'bell-shaped' curve that is slightly skewed to the right of the scale (or "negatively skewed"). The observed mean of 74.6 and the median of 75 are slightly higher than the theoretical mean of 72 for the scale; the mode for this dimension is 72. (In a "perfectly" normal distribution, the mean, median, and mode would all be identical, and would be 72 for this scale.) The responses on the scale ranged from 18 - 126, which does represent the full range of possible scores for the scale. The standard deviation (SD) is 15.8 and the reliability of this dimension, using Cronbach's Coefficient Alpha, is .87. The standard error of measure (SEM) for OC is 5.68. (Thus, given an observed score, there is a 68.26% probability that the person's true score would be that score ±5.68.)

Distribution of Scores: Manner of Processing

Figure 2, at the bottom of the following page, presents the distribution of responses for the Manner of Processing (MP) dimension of VIEW. For this dimension, the 'bell shape' of the distribution is slightly platykurtic, with a slight positive skew. That is, the distribution is slightly "steeper" than a perfectly normal distribution, and slightly skewed to the left (the External style). The observed mean of 30.1 is slightly lower than the theoretical mean of 32 for the scale, while the median is 30 and the mode is 32; the responses span the entire 8 – 56 point range of the scale. The standard deviation (SD) for this scale is 9.2, and the Cronbach's Alpha reliability is .82. Therefore, the standard error of measure (SEM) for the MP dimension is 3.89. (Thus, given an observed score, there is a 68.26% probability that the person's true score would be that score ±3.89.)

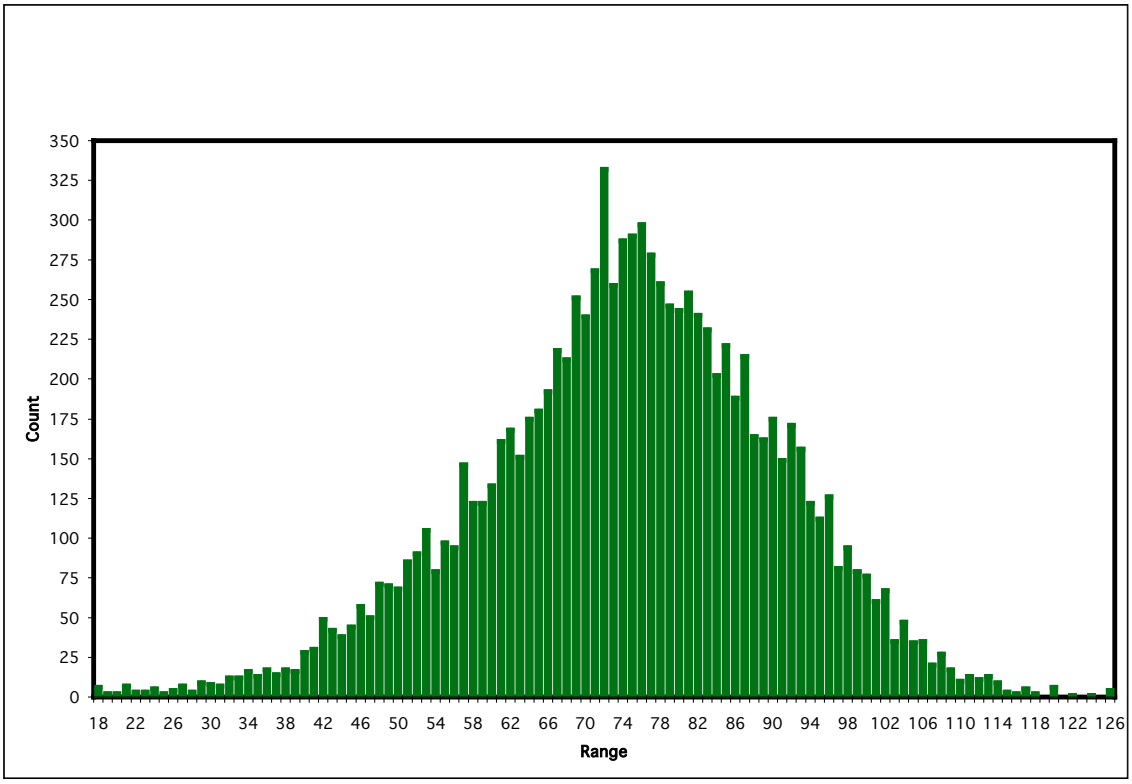

Figure 1: Distribution of Scores for Orientation to Change (OC)

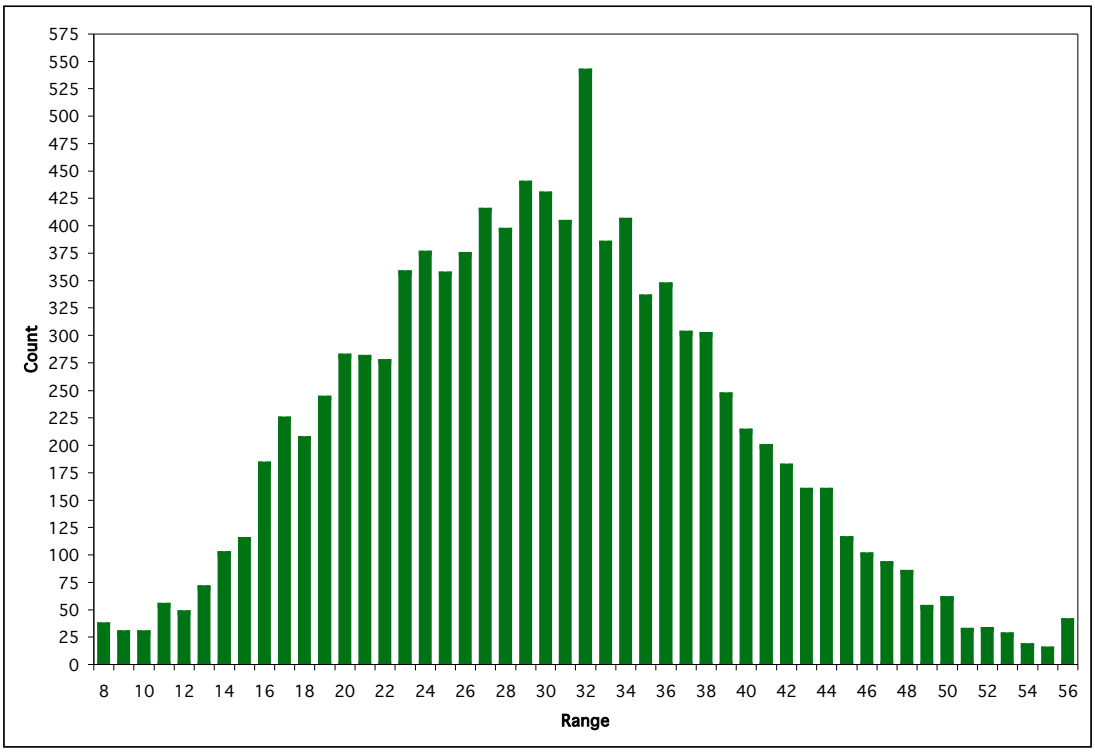

Figure 2: Distribution of Scores for Manner of Processing (MP)

Distribution of Scores: Ways of Deciding

Figure 3, below, presents the distribution of results for the Ways of Deciding (WD) dimension of VIEW. The distribution shown here is generally normal ("mesokurtic"), although slightly negatively skewed i.e., skewed slightly to the right). The observed mean of 34.6 is higher then the theoretical mean of 32 for the scale. The median is 35 and the mode is 32, and, as for the MP scale, the WD responses spanned the entire 8 – 56 point range of the scale. The standard deviation (SD) for this dimension is 8.5, and the Cronbach's Alpha reliability is .84. Therefore, the standard error of measure (SEM) for the WD dimension is 3.40. (Thus, given an observed score, there is a 68.26% probability that the person's true score would be that score ±3.40.)

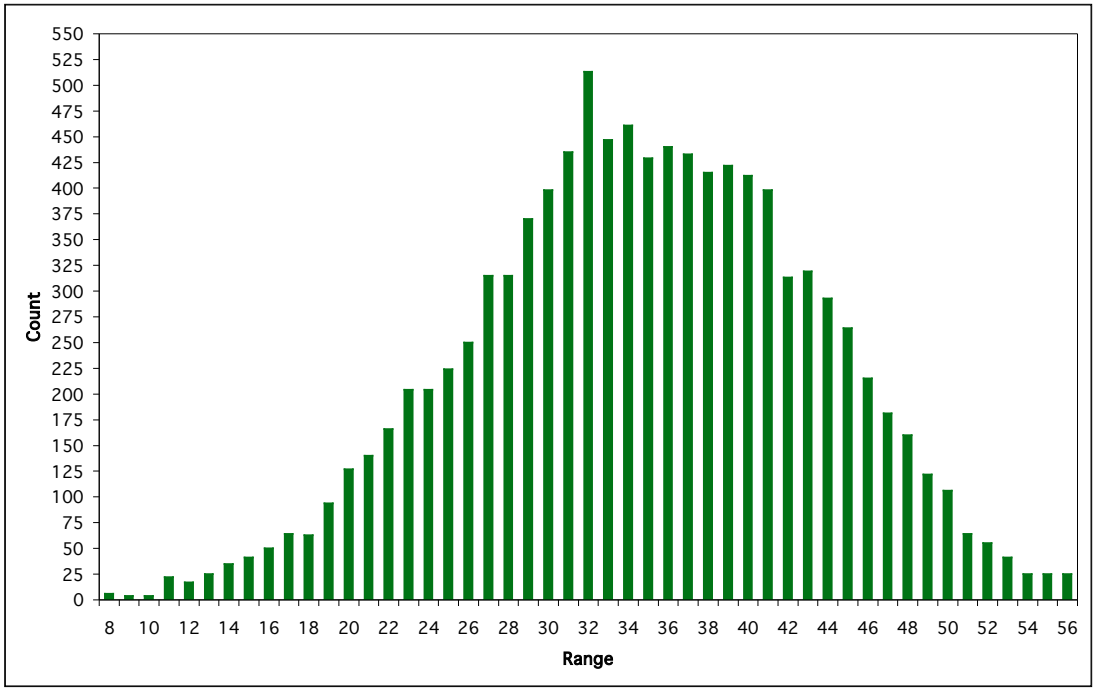

Figure 3: Distribution of Scores for Ways of Deciding (WD)

Factor Structure of the VIEW Inventory

Selby, Treffinger, Isaksen, and Lauer (2004a, 2004b) reported data on the factor structure of the VIEW inventory, which supported the assertion that VIEW comprises three relatively independent dimensions, based on data from 3,676 subjects. The factor analysis (a principal components analysis with a Varimax rotation) for the expanded database of 10,151 subjects indicates that the structure still supports the same structural model. Seventeen of the 18 items for the OC dimension load from .388 to .736 on one factor, and no other items load as high as .30 for that factor. All eight items of the MP dimension load from .564 to .767 on one factor. None of those items load as high as .10 on any other factor, and no other items load greater than .16 on the MP factor. For the WD dimension, all eight items load from .584 to .762 on one factor. None of those items loads more than .11 on any other factor, and only one item from another factor loads as high as .30 on the WD factor. These data provide evidence to support the validity of the structure of the VIEW inventory. We are confident that VIEW's items measure the constructs they purport to assess, and that VIEW's three dimensions are both logically and statistically sound.

Distribution of Scores by Interaction of VIEW Dimensions

Figure 4, below, presents the number of subjects in each of the eight categories representing interactions among all three VIEW dimensions, based on the current master database (N = 10,151).

	Explorer		Developer	
	External	Internal	External	Internal
Person	1316 (13.0%)	1111 (10.9%)	1327 (13.1%)	1240 (12.2%)
Task	1200 (11.8%)	984 (9.7%)	1470 (14.5%)	1503 (14.8%)

Figure 4: Frequency of Scores By Interaction of VIEW Dimensions

As we reported in the 2004 Technical Update (Treffinger, Selby, Isaksen, & Lauer, 2004), the distribution of scores differs from the pattern that might be expected by chance (i.e., 12.5% of the cases in each of the eight combinations). There is no conceptual reason, however, to believe that the scores would be distributed on a chance or random basis. Despite the fact that the master database contains a large number of subjects, it is nonetheless an accumulation of samples of convenience and opportunity, and therefore, not strictly a random sample of the total population of all adolescents and adults. Therefore, we cannot conclude with certainly that the combinations that seem "over-" or "under-represented" in the distribution reflect greater or smaller incidence of those combinations in the population. Since the 2004 report, there have been increases in both External Explorer categories, in the Explorer-External-Person category, and in the Developer-Internal-Person category. The percentage of subjects in both External and Internal Task-oriented Developer categories has decreased. There are fewer cases in both the Internal Explorer Person- and Task-oriented categories than might be expected by chance (10.9% and 9.7%) and in the External Explorer Task-oriented category (11.8%). Both External and Internal Task-Oriented Developer categories are represented more frequently than might be expected by chance (14.5% and 14.8%). We will continue to monitor these patterns over time and as the opportunities expand to study VIEW in a broader, multi-cultural context. During 2005, we introduced Dutch, French, and Chinese editions of VIEW (the characteristics of which will be addressed in a separate report, and the data from which are not included in the current master database), and work is in progress on both Korean and Japanese translations. We also expect work on other language editions to commence in 2006.

Summary

We believe that the data presented in this Technical Update continues to support the soundness of VIEW as a valid, reliable, and practical tool for assessing problem-solving style. These data will also guide VIEW users in understanding and interpreting VIEW results accurately, and in assisting

respondents to understand their results, and the implications of those results for personal and professional effectiveness.

We continue to invite research on VIEW by scholars and practitioners in many disciplines or settings. Visit the VIEW website (http://ViewStyle.net) for information concerning support for research on VIEW.

References Cited

Selby, E. C., Treffinger, D. J., Isaksen, S. G., & Lauer, K. J. (2004a). *VIEW technical manual.* Sarasota, FL: Center for Creative Learning.

Selby, E. C., Treffinger, D. J., Isaksen, S. G., & Lauer, K. J. The conceptual foundation of VIEW: A tool for assessing problem solving style *Journal of Creative Behavior*, 38 (4), 221-243.

Treffinger, D. J., Selby, E. C., Isaksen, S. G., & Lauer, K. J. (2004). *VIEW: 2004 technical update.* Sarasota, FL: Center for Creative Learning. [Available at http://ViewStyle.net].