VIEW: A Decade of Collaboration and Continuous Improvement

Scott G. Isaksen
Creative Problem Solving Group, Inc.
Norwegian Business School

It’s been 10 years since VIEW was launched, so the purpose of this report is to provide an overall summary of progress made to date. The “historical roots” of VIEW date back to the Cognitive Style Project in the late 1970s (Isaksen, 2004). The aim was to better understand what Creative Problem Solving approaches worked better for individuals of differing preferences. Ed Selby had begun a similar quest for his own teaching in music, drama, and creative writing (Selby, 2002). The initial collaboration amongst the VIEW authors was Selby’s doctoral dissertation in the early 1990s (Selby, Treffinger, Isaksen, & Powers, 1993).

We examined many different learning style, cognitive style, and psychological type measures and initially resisted developing yet another assessment. But none of the existing alternatives possessed both the conceptual and empirical soundness and relevance to a creative kind of problem solving. We became convinced that we needed a new style assessment that built upon our previous learning and was:

- **Relevant** – to our practice relating to teaching, learning, applying, and facilitating Creative Problem Solving and helping individuals and teams to become more productive

- **Highly accessible** – useful across a broad span of ages and available either through a paper or web-based approach

- **Brief** – although we were committed to developing an assessment that had a solid conceptual foundation and excellent psychometric qualities, we wanted the measure to efficient in the amount of time required to respond

- **Value-neutral** – we believed that all styles had value and we wanted an assessment tool that built on this belief

VIEW was launched in 2002, with the publication of our first technical manual and user’s guide (Selby, Treffinger, Isaksen, & Lauer, 2002). We produced a second edition of the technical manual in 2004 (Selby, Treffinger, Isaksen, & Lauer, 2004a) and the initial separate facilitator’s guide for qualified VIEW users (Selby, Treffinger, Isaksen, & Lauer, 2004b). Updated versions of both these resources were produced in 2007 (Selby, Treffinger, & Isaksen, 2007a&b).

Technical Update

The VIEW Technical Manual (Selby, Treffinger, & Isaksen, 2007a) provides information regarding the initial development and research on VIEW through 2007. We have produced numerous technical updates over the years and the results have been consistent regarding the psychometric properties of VIEW. This technical update has been produced based on 31,360 individuals who have completed VIEW and are on file within our master database. Other individuals have completed VIEW by completing a print version and they are not represented here.

Descriptive Statistics

The current database for VIEW (as of the end of December, 2011) included 31,360 subjects. Based on 29,032 subjects who provided age data, the mean age is now 36.8 (SD = 14.02; range, 9 - 94). The database includes 14,844 male respondents (47.8%), 16,229 female respondents (52.2%), and 284 respondents (0.09%) 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).

<table>
<thead>
<tr>
<th>Statistic</th>
<th>OC</th>
<th>MP</th>
<th>WD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>74.2</td>
<td>29.2</td>
<td>35.3</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>15.7</td>
<td>9.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Median</td>
<td>75.0</td>
<td>29.0</td>
<td>36.0</td>
</tr>
<tr>
<td>Mode</td>
<td>72.0</td>
<td>32.0</td>
<td>32.0</td>
</tr>
<tr>
<td>Minimum</td>
<td>18.0</td>
<td>8.0</td>
<td>8.0</td>
</tr>
<tr>
<td>Maximum</td>
<td>126.0</td>
<td>56.0</td>
<td>56.0</td>
</tr>
<tr>
<td>Skewness</td>
<td>-0.21</td>
<td>0.22</td>
<td>-0.20</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>0.07</td>
<td>-0.26</td>
<td>-0.20</td>
</tr>
<tr>
<td>Standard Error of Measure</td>
<td>5.71</td>
<td>3.46</td>
<td>3.32</td>
</tr>
</tbody>
</table>

The correlations of VIEW’s dimensions with age or gender are negligible. For age, the correlations are: Orientation to Change, $r = -0.07$ (p<.01); Manner of Processing, $r = 0.00$ (n.s.); and Ways of Deciding, $r = 0.07$ (p<.01). Although the correlations for OC and WD are statistically significant (probably by virtue of the large sample size), note that the magnitude of the relationships is very weak (accounting for 0.49% of the variance). For gender the correlations are: Orientation to Change, $r = 0.13$ (p<.01); Manner of Processing, $r = 0.03$ (p<.01); and, Ways of Deciding, $r = -0.29$ (p<.01). Again, the significant correlations between gender and the dimensions is indicative of a weak relationship. The relationship between gender and WD is somewhat stronger, but still accounts for only 0.9% of the variance; it suggests a slight tendency for female subjects to have a Person-
oriented preference and for male subjects to have a Task-oriented preference. This result is similar to findings from other comparable 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>
<thead>
<tr>
<th>Variable</th>
<th>OC</th>
<th>MP</th>
<th>WD</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC</td>
<td>1.00</td>
<td>0.10**</td>
<td>0.11**</td>
</tr>
<tr>
<td>MP</td>
<td>1.00</td>
<td>0.11**</td>
<td></td>
</tr>
<tr>
<td>**=p&lt;.01</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 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. Further evidence for the independence of the dimensions can be drawn from the factor analyses of VIEW (see Table 3 below).

**Distribution of Scores: Orientation to Change**

Figure 1 presents the total distribution of scores for the OC dimension, based on the current master data set (N=31,360). 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 74.2 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 represents the full range of possible scores for the scale. The standard deviation (SD) is 15.7 and the reliability of this dimension, using Cronbach’s Coefficient Alpha, is .87. The standard error of measure (SEM) for OC is 5.71. (Thus, given an observed score, there is a 68.26% probability that the person’s true score would be that score ±5.71.)
Distribution of Scores: Manner of Processing

Figure 2, at the bottom of this 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 29.2 is slightly lower than the theoretical mean of 32 for the scale, while the median is 29 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 9.1, and the Cronbach’s Alpha reliability is .86. Therefore, the standard error of measure (SEM) for the MP dimension is 3.46. (Thus, given an observed score, there is a 68.26% probability that the person’s true score would be that score ±3.46.)

**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 35.3 is higher than the theoretical mean of 32 for the scale. The median is 36 and the mode is 32, and, as for the MP scale, the WD responses spanned the entire 8 – 56 point range of the scale.

![Distribution of Scores for Ways of Deciding (WD)](image)

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 3.32. (Thus, given an observed score, there is a 68.26% probability that the person’s true score would be that score ±3.32.)

**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 current database of 31,360 subjects indicates that the structure still supports the same structural model. Seventeen of the 18 items for the OC
dimension load from .384 to .736 on one factor. Only two OC items co-load on another factor but their loading on their home factor is substantially higher. All eight items of the MP dimension load from .566 to .758 on one factor. None of those items load as high as .30 on any other factor. For the WD dimension, all eight items load from .575 to .765 on one factor. None of those items loads more than .30 on any other 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.

Isaksen and Aerts (2011) conducted confirmatory factor analysis on a large VIEW database sample (N = 19,065) which resulted in a goodness-of-fit index (GFI) of .86, an adjusted goodness of fit index (AGFI) of .85, a normal fit index (NFI) of .82, and a root mean square error of approximation (RMSEA) of .06, indicating an adequate fit of the three-dimensional model. Given the relatively large and diverse sample, these results are likely a conservative estimate of fit (Cheung & Rensvold, 2002). The Cronbach’s Coefficient Alphas for this sample on VIEW were .87 for Orientation to Change and .86 for both Manner of Processing and Ways of Deciding.

Further work on the confirmatory factor structure of VIEW is ongoing. Proestler & Vazquez (2011) presented a paper based on some analysis conducted at Fordham University. The three dimensions of VIEW demonstrated acceptable levels of fit. More information on factor analysis will be forthcoming.

The results of our most recent factor analysis are included within Table 3. This was accomplished through Varimax Rotation that took 5 iterations to converge.
Table 3: Factor Analysis of VIEW (N=31,360)

<table>
<thead>
<tr>
<th>VIEW Items</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>OC-1</td>
<td>.736</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-2</td>
<td>.723</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-3</td>
<td>.653</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-4</td>
<td>.649</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-5</td>
<td>.642</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-6</td>
<td>.631</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-7</td>
<td>.621</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-8</td>
<td>.594</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-9</td>
<td>.548</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-10</td>
<td>.547</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-11</td>
<td>.539</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-12</td>
<td>.528</td>
<td>.327</td>
<td></td>
</tr>
<tr>
<td>OC-13</td>
<td>.524</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-14</td>
<td>.579</td>
<td>.311</td>
<td></td>
</tr>
<tr>
<td>OC-15</td>
<td>.450</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-16</td>
<td>.393</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-17</td>
<td>.384</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OC-18</td>
<td>&lt;.300</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WD-1</td>
<td></td>
<td>.765</td>
<td></td>
</tr>
<tr>
<td>WD-2</td>
<td></td>
<td>.755</td>
<td></td>
</tr>
<tr>
<td>WD-3</td>
<td></td>
<td>.711</td>
<td></td>
</tr>
<tr>
<td>WD-4</td>
<td></td>
<td>.673</td>
<td></td>
</tr>
<tr>
<td>WD-5</td>
<td></td>
<td>.657</td>
<td></td>
</tr>
<tr>
<td>WD-6</td>
<td></td>
<td>.654</td>
<td></td>
</tr>
<tr>
<td>WD-7</td>
<td></td>
<td>.600</td>
<td></td>
</tr>
<tr>
<td>WD-8</td>
<td></td>
<td>.575</td>
<td></td>
</tr>
<tr>
<td>MP-1</td>
<td></td>
<td></td>
<td>.758</td>
</tr>
<tr>
<td>MP-2</td>
<td></td>
<td></td>
<td>.747</td>
</tr>
<tr>
<td>MP-3</td>
<td></td>
<td></td>
<td>.722</td>
</tr>
<tr>
<td>MP-4</td>
<td></td>
<td></td>
<td>.722</td>
</tr>
<tr>
<td>MP-5</td>
<td></td>
<td></td>
<td>.719</td>
</tr>
<tr>
<td>MP-6</td>
<td></td>
<td></td>
<td>.716</td>
</tr>
<tr>
<td>MP-7</td>
<td></td>
<td></td>
<td>.680</td>
</tr>
<tr>
<td>MP-8</td>
<td></td>
<td></td>
<td>.566</td>
</tr>
<tr>
<td>% of Variance</td>
<td>17.9</td>
<td>12.6</td>
<td>11.1</td>
</tr>
<tr>
<td>Eigenvalues</td>
<td>6.1</td>
<td>4.3</td>
<td>3.8</td>
</tr>
</tbody>
</table>
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 = 31,360).

<table>
<thead>
<tr>
<th></th>
<th>Explorer</th>
<th>Developer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>External</td>
<td>Internal</td>
</tr>
<tr>
<td>Person</td>
<td>4377</td>
<td>2824</td>
</tr>
<tr>
<td></td>
<td>(14.0%)</td>
<td>(9.0%)</td>
</tr>
<tr>
<td>Task</td>
<td>4309</td>
<td>3155</td>
</tr>
<tr>
<td></td>
<td>(13.7%)</td>
<td>(10.1%)</td>
</tr>
</tbody>
</table>

As we reported in previous technical updates, 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 certainty 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.
Translations

During 2005, we introduced Dutch, French, and Chinese editions of VIEW (the characteristics of which are addressed in separate reports and articles), and currently VIEW is available for web-based use in:

English, Netherlands (Dutch), Chinese, French, Korean, Japanese, Spanish, and Norwegian.

More detailed information regarding the performance of the various translations will be available in the next edition of the VIEW Technical Manual.

Summary

We believe that the data presented in this Technical Update continue to support the soundness of VIEW as a valid, reliable, and practical tool for assessing problem-solving style (Selby, Treffinger, Isaksen, & Lauer, 2004c; Treffinger, Selby, Isaksen, 2008). 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.

References Cited


Growth through Applications

We have continued to learn about the many potential applications of the VIEW assessment since its introduction in 2002. Given our previous experiences in developing materials and resources that are capable of application in both educational and business settings (Isaksen, Treffinger, & Dorval, 2011) we are pleased to see that VIEW can be applied across these platforms.

People who use VIEW are called Qualified VIEW Users and since 2002 a growing number individuals from 20 different countries have completed qualification programs and courses.

The two main areas that many of our Qualified Users have told us about their application of VIEW include those below.

Integrated into Training on Creative Problem Solving

The authors and many VIEW Users have found VIEW easy to integrate into their training and consulting efforts, particularly when they focus on Creative Problem Solving. The Orientation to Change dimension provides useful insights into how people approach defining and clarifying their opportunities and challenges (as well as how they prefer to frame problems). OC also seems to fit well for explaining preferences for either generating or focusing options. The Manner of Processing dimension readily explains important differences in how people prefer to generate alternatives. Ways of Deciding provides understanding about what people prefer to focus upon when screening, selecting and supporting options. VIEW has also been integrated into other training programs using a number of different models (Lean Six Sigma, etc.).

We have been particularly pleased that VIEW has been applied within Destination Imagination, Future Problem Solving, and a variety of other educational programs ranging from gifted education programs to higher education courses.

Our Users’ application within business and industry has been very strong as well. VIEW has been fully integrated within all of CPSB’s Igniting Creative Potential courses and workshops provided to a wide variety of organizations (Discovery Communications, Exxon-Mobil, GE, Halma, and IBM, among others).

Productive Teamwork

One of the major areas of application for VIEW has been the focus on helping individuals within teams understand their own problem-solving styles and appreciate the need for a diversity of these styles. This has helped working teams
lever their diversity to become more productive.

**Others**

There are many other potential applications of VIEW and we’d like to know more about these. We plan on including a number of sample case studies on our website (viewstyle.net) in order to share them with other Qualified VIEW Users and people who are interested. Please feel free to contact any of the authors.
Research and Development

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. Since its inception, the VIEW authors, other scholars, and graduate students have conducted a variety of studies and shared diverse insights and resources. The bibliography below includes works that have been accomplished. There are additional studies underway and these include:

- Houtz, J. (In preparation). Genetic origins and VIEW.

VIEW Literature and Resources

We have had a full decade of collaboration in understanding and using VIEW, so it seemed like the right time to "take stock" of the publications (articles, monographs, books) and other related resources.

I have tried to be as thorough as possible, but there may be additional resources that are not included. Please forgive any errors of omission and let me know about any I’ve missed, as we’ll be sure to include them in future updates.

This bibliography is divided into five main sections: books, manuals, and monographs; published articles and chapters; published reviews; dissertations and theses; and conference papers and presentations.

I. Books, Manuals, and Monographs


**II. Published Articles and Chapters**


creativity (pp. 169-188). Dordrecht: Springer Science.


III. Published Reviews


IV. Dissertations and Theses


Economics of the VLEKHO University for Science and Art. Brussels, Belgium.


V. Conference Papers and Presentations


Houtz, J., Selby, E., Esquivel, G., & Treffinger, D. (1999, August). Creativity styles and personality type: Paper submitted to Division 10 of the American Psychological Association for presentation at the annual meeting, Boston, MA.


Isaksen, S. G. (2006, September). Exploring the relationship between problem-solving style and creative psychological climate. An invited paper presented to Milieu of Creativity Symposium – Second Interdisciplinary Symposium on Knowledge and Space. Hosted by the Geographisches Institut of the University of Heidelberg and the Klaus Tschira Foundation, The Villa Bosch,
Germany.


Isaksen, S. G. (2008, April). *Creativity, innovation, and the art of thinking: Understanding and appreciating a diversity of problem-solving styles.* An invited presentation to the Art of Thinking course at the University of Great Falls, Montana.


style. Presented at the 2003 International Competition of the Future Problem Solving Program, University of Connecticut, Storrs, CT.


**VI. Distance Learning Modules**