Conation: A Neglected Aspect of Neuropsychological Functioning

Ralph M. Reitan and Deborah Wolfson

Reitan Neuropsychological Laboratory

Conation, which involves the ability to apply oneself diligently and productively to the completion of a task over time, was compared in groups with and without evidence of brain damage. Both groups were administered tests that ranged from tasks that were presented by an examiner one item at a time (minimal conation), to a task that required the subject to work independently for 30 minutes, with instructions to work as quickly and as accurately as possible. In this study it was not possible to control test content perfectly, but all tasks were primarily verbal in nature. The subjects with brain damage, compared to the controls, showed progressive impairment in accordance with the degree to which the tasks were judged to require conative ability. Conation, which has been a neglected dimension of behavior in neuropsychological assessment, may be the missing link between cognitive ability and prediction of performance capabilities in everyday life. Additional research is needed to investigate further this apparently significant aspect of neuropsychological functioning. © 2000 National Academy of Neuropsychology. Published by Elsevier Science Inc.

Keywords: conation, purposive striving, intellectual power, brain damage, neuropsychological assessment

Using neuropsychological tests to assess the higher-level deficits resulting from brain damage is a central feature of clinical neuropsychology. Since the brain subserves many diverse functions, it is not surprising that a broad range of tests have been developed. Lezak (1995), in her comprehensive review of neuropsychological tests, identifies tests to measure orientation, attention, perception, memory in its many aspects and types, verbal and language skills, visual-spatial and manipulatory skills, motor abilities and manual dexterity, constructional capabilities, concept formation and reasoning, and executive functions. Categories of tests have included verbal versus performance measures and speed versus power tests.

Curiously, there has been scant research devoted to the measurement of the ability to marshal and focus the intellectual energy that must often be applied in order to deal successfully with complex problems that require some time to solve. In observing the performances of persons with brain damage, one can often discern the progressive deterio-

The authors wish to thank the members of the Tucson chapter of the Reitan Society for their critical evaluation and suggestions regarding this study.

Address correspondence to Ralph M. Reitan, Reitan Neuropsychology Laboratory, POB 66080, Tucson, AZ 85728-6080.
ration of efficiency, sometimes to the point of nearly random efforts, on tests such as the Tactual Performance Test (TPT) (Reitan & Wolfson, 1993). It actually appears that persons with brain damage sometimes deplete their available intellectual energy much more rapidly than do persons who have not sustained brain damage. In everyday life (and we are all concerned with ecological validity), it sometimes is important to be able to provide a specific item of information or to solve a brief, well-defined problem. More often, however, solving a problem involves a number of steps: analyzing the problem, identifying the critical components, applying persistent effort (often including trial and error), reappraising the problem and possibly adopting a new strategy, and persistently utilizing insight and intelligence in order to reach a solution. Ability to focus and maintain intellectual energy is rarely considered as a significant consequence of brain damage. Instead, neuropsychological tests focus mainly on areas of function. While measurement of some abilities requires tests that rely on problem-solving tasks, the emphasis is still on how well the subject performs in various areas. This contention can easily be documented merely by reviewing the clinical reports written by neuropsychologists, which often consist mainly of a listing of the subject’s performance in various areas of function, followed by conclusions that rate and compare the performances in the various areas. (The reader may wish to refer to Dodrill, 1997 for an evaluation of the extent to which these various areas of function even merit identification as separate and distinct behavioral entities.) It may be that different levels of performance in various areas of function are determined not only by selective impairment in various areas, but also by the extent to which individual tests require the ability to marshal and maintain intellectual energy.

Conation is a term that has been used in psychology to refer to the ability to apply intellectual energy to a task, as needed over time, to achieve a solution or completion. Conation has occupied a significant position in the history of psychology, but has become sufficiently neglected that we should probably begin with a definition.

*Webster’s Third New International Dictionary, Unabridged* (1993) gives a multifaceted definition, but emphasizes that conation refers to an instinctually motivated or purposeful striving toward and willing of task completion. Conation obviously differs from cognition, which has been defined as the mental processes involved with thinking, learning, and memory in the process of gaining knowledge. Motivation may overlap with conation, but differs inasmuch as it is concerned with need fulfillment and incentives that direct and drive behavior toward goal achievement. Vigilance may come closest to conative behavior, but vigilance is relatively passive in nature, receptive in character, and depends upon continued alertness and observation. Conation, insofar as it might be represented in neuropsychology, could be thought of as the ability to focus and maintain persistent effort in order to achieve maximal production in performance of a task—in a sense, the ability to apply maximal intellectual energy to the task at hand, to work with continued efficiency and speed, and to achieve as much effective production as possible. We are not referring to the interactions of needs, incentives, and goals (motivation), but instead to maintenance of intellectual energy (intellectual endurance) or deterioration and dissipation of intellectual energy over time (as exemplified by deterioration of intelligent behavior under the continuing requirements of the TPT).

Our review of the literature revealed few substantive studies of conation during the last 60 years. In the earlier development of psychology, however, conation occupied a central position. In his book, *A History of Experimental Psychology*, Boring (1929) reviewed the history of the concept of conation, its meaning as a psychological function, and its role in theoretical formulations of the mind. He noted that the British psychologist, James Ward, in the latter 1800s and early 1900s developed his theories of psychology around the central theme that cognition, conation, and feeling were the basic aspects
of mental functioning. George Stout, another leading British psychologist who followed the positions of Ward, developed the central role of conation even further. In fact, Boring referred to Stout’s “famous doctrine of conation” (p. 458) which, represented in brief form, refers to “the fact and experience of striving.” William McDougall, who began his career in England and later spent years at Duke University, developed a specific theory of behavior, published mainly during the first third of the 20th century, that had, as a principal feature, the central role that “purposive striving” plays in mental activity. Boring described McDougall’s systematic theory as “purposive psychology” because it featured the purposive activity of the organism as the central feature of the mind.

Anderson (1934), Warren (1931), and, even as late as 1960 and 1986, Burt (1960) and Kydd and Wright (1986), concluded that the three fundamental characteristics of mental functioning were cognition, conation, and affection. Warren, who was an eminent scholar and researcher of animal behavior, differentially related these three basic functions to their sensory or receptor organs with exteroception relating principally to cognition, interoception to affection, and proprioception to conation. He further noted that other important neurological foundations of these basic psychological functions might eventually be clarified.

The influence of conation on cognition was studied by Wild (1927, 1928), who concluded that the level of conation had a significant effect on both muscular and cognitive output. Richardson (1929) evaluated and classified children according to temperament, which he felt reflected conative level, and found a relationship to performance on intelligence test scores as well as educational attainment.

The biological bases of conation have not been well-researched. It is tempting to relate conation, as the ability to apply intellectual energy to the task at hand and to achieve effective production with speed and efficiency, to the function of the prefrontal areas, under the general caption of “executive functions.” A careful review of the literature, however, lends little definitive support to the myriad of specific behavioral characteristics that have been attributed to the frontal lobes, either on the bases of clinical observations or neuropsychological test findings (Anderson, Damasio, Jones, & Tranel, 1991; Costa, 1988; Reitan & Wolfson, 1994, 1995). A specific form of electrical activity of the brain, recorded from electrodes over the frontal cortex and called the “expectancy wave” or “contingent negative variation,” has been reported to occur reliably when the organism has adopted an attitude of readiness in anticipation of a signal for a required motor response (see Reitan & Wolfson, 1992, for a more complete description of this phenomenon and its relation to behavior). Low, Borda, and Kellaway (1966) have explicitly cited the contingent negative variation in the electroencephalograph recordings of rhesus monkeys as an electrophysiological representation of conation. However, we found no further references to the neurobiological bases of conation.

A high level of conation would obviously be an important factor in achieving productive competence in everyday problem-solving situations. Few practical problems can be solved merely on the basis of having the knowledge that might be required. The effective person must have the intellectual energy and ability to apply persistent effort in adapting to the various aspects of a problem until the problem is solved. Many investigators have referred to the rather loose coupling that exists between neuropsychological test results and efficient functioning in practical, everyday situations, and Sbordone and Long (1996) have recently edited a book on the ecological validity of neuropsychological testing, which, among other things, notes the limitations of our current knowledge. A necessary but missing element might be represented by our failure to have evaluated conation. As neuropsychologists, we have been inclined to appeal to emotional problems when an individual fails to perform at a level consistent with his/her intellectual
and cognitive capabilities, but we all see instances in which emotional problems do not seem to carry the burden of explanation. Conation may well be the neglected aspect of neuropsychological assessment that represents a critical link in relating measured cognitive abilities to efficiency in practical performances.

The design of this study would have been improved if it had been possible to maintain equivalence of content and difficulty level across the tests, with the only variable relating to the time-duration during which intellectual energy, or power, needed to be applied to the task. Although we could not do this, it was possible to order the tests according to their requirement for conative effort. The Information, Vocabulary, and Arithmetic subtests of the Wechsler Adult Intelligence Scale (WAIS) (Wechsler, 1955) were administered one item at a time. The Arithmetic subtest may require attention to sequential elements of the problem to a greater extent than Information and Vocabulary subtests. The Speech-Sounds Perception Test (SSPT) (Reitan & Wolfson, 1993), which is administered at a standard rate across the 60 items, requires the subject to maintain his/her efficiency over time. Finally, the Henmon-Nelson Test (Lamke & Nelson, 1957) appeared to require the greatest degree of conation, inasmuch as the subject was instructed to work independently as quickly as possible, progressing from one item to the next, over a period of 30 minutes.

**METHOD**

**Procedure**

This study utilized primarily verbal tests (although they differed with respect to the tasks presented). Three of the tests (Information, Vocabulary, and Arithmetic subtests of the WAIS) were administered to each subject individually an item at a time. One test, the SSPT, was presented an item at a time by a tape recording, with only a brief pause between each set of 10 items in a total of 60 items. The final test (Henmon-Nelson Test of Mental Ability) was placed before the subject with instructions to work independently as quickly and as accurately as possible (for 30 minutes). The subtests from the WAIS and the SSPT have been studied in detail in a neuropsychological context. The Henmon-Nelson Test, however, has not been considered a neuropsychological test. For example, it is not listed or reviewed in the host of tests considered by Lezak (1995). We deliberately selected the Henmon-Nelson Test because it was not a neuropsychological test and only because it required the subject to apply his/her intellectual energies as effectively as possible over a 30-minute period. In the first set of tests, the examiner imposed the structure on the procedure item-by-item. With the SSPT, the examiner imposed the structure on the test, giving the subject practice to be certain that the procedure was understood and followed, but then the subject was responsible for continuing to focus on the task through a series of 60 items. Finally, with the Henmon-Nelson Test, the subject was solely responsible for applying himself/herself to the task and working as efficiently as possible for the time allowed (30 minutes). The three subtests from the WAIS were administered in standard sequence (Information, Arithmetic, and Vocabulary), but the other tests were given at varying points in administration of a more comprehensive battery.

Our hypothesis was that the Brain-Damaged group would show progressive impairment, as compared to the Control group, as the tasks progressed in their requirement for focused and continued effort. Our postulate was that subjects with brain damage would not be able to marshal and maintain their intellectual energy and efficiency as effectively as subjects who had not sustained brain damage, and thus would perform progressively
more poorly as the tests progressed from tasks requiring minimal persistent intellectual
effort to tests requiring the ability to apply oneself to the task over time.

The tests used in this study were not selected for their sensitivity to brain damage. Al-
though the SSPT has consistently been shown to be impaired in groups of persons who
had sustained brain damage (Reitan & Wolfson, 1990), and the Arithmetic subtest of
the WAIS is also probably adversely affected (Reitan & Wolfson, 1993), the Informa-
tion and Vocabulary subtests are generally thought to be relatively resistant to the ef-
fects of brain damage, and group tests of intelligence, such as the Henmon-Nelson, have
rarely even been considered or researched for neuropsychological validity. Many neu-
ropsychologists probably are not even familiar with the Henmon-Nelson Test, which is a
paper-and-pencil intelligence test consisting of 90 items. The subject is instructed to
complete as many items as possible in a 30-minute period. The items are answered by se-
lecting one of five alternatives, and include vocabulary, sentence completion, comple-
tion of sequences, verbal comprehension, unscrambling letters to form words, and ver-
bal and spatial analysis.

Participants

A group of 25 persons with brain damage (mean age = 30.00 years; SD = 8.19; mean
education = 11.40 years; SD = 3.24) was compared with a group of 25 non-brain-dam-
aged persons (mean age = 30.48 years; SD = 8.61; mean education = 11.32 years; SD =
3.53). Age and education differences in the two groups did not approach statistical sig-
nificance. Males predominated in each group, numbering 23 of 25 participants in the
group of persons with brain damage and 24 of 25 participants in the non-brain-damaged
group. Every person considered for inclusion in the study had a detailed medical history
taken and had been given a complete physical and neurological examination. The per-
sons with brain damage were given additional specialized neurological diagnostic exami-
nations to establish the diagnoses. Participants qualified for inclusion in the non-brain-
damaged group only if there was no evidence of past or present brain disease or damage.
Every subject in the group who had sustained brain damage had unequivocal evidence
of cerebral disease or damage. In the non-brain-damaged group we deliberately in-
cluded persons who had significant illnesses or injuries that were not specifically brain-
related, in order to roughly equate the groups with respect to the many stresses and
emotional strains that often accompany brain disease or damage.

The diagnoses of the participants who had sustained brain damage were as follows:
closed head injury, 5; multiple sclerosis, 5; cerebral vascular thrombosis, 4; intrinsic tu-
mor, 4; cerebral abscess, 2; arteriovenous malformation, 2; epilepsy, 2; and penetrating
head injury, 1. We deliberately composed a diversified and heterogeneous group of per-
sons with brain damage inasmuch as this is an initial study and we wanted the group to
represent more adequately the wide range of conditions included under this heading.
Two of the non-brain-damaged participants were unpaid volunteers. The other 23 par-
ticipants had the following diagnoses: paraplegia, 15; spinal disk herniation, 4; peripheral
nerve injury, 1; panic attacks, 1; paranoid reaction, 1; and depression, 1. We deliberately
included persons in this group who had significant clinical problems (although carefully
ruling out brain damage) in order to increase the specificity of any significant results.

Statistical Analyses

Since a major purpose of this study was to determine the comparative degree of defi-
cit among subjects who had sustained brain damage and subjects who had no brain dam-
age, it was necessary to transform raw scores into standard scores. Thus, the scores on each test for the combined groups were transformed to normalized $T$ scores, with a mean of 50 and a standard deviation of 10, and the $T$ scores for the 25 subjects in each group were used for statistical analyses. The first step was to compute $t$ tests to determine the significance of mean differences between the two groups on the five variables. Since the greatest and most consistent differences between the groups occurred on the Henmon-Nelson Test, difference score distributions between Henmon-Nelson $T$ scores and $T$ scores for each of the other tests were obtained separately for the brain-damaged and the control groups. Next, $t$ tests were done to determine whether the group with brain damage performed significantly more poorly on the Henmon-Nelson Test than on any of the other four measures, and comparable $t$ tests were done for the control group. Finally, the data were analyzed to determine whether the intergroup differences shown on the various tests were significantly greater for some tests than others.

**RESULTS**

Table 1 presents $T$-score means, standard deviations, $t$ ratios, and probability levels for each group on the five variables.

The groups did not differ significantly on the three subtests of the WAIS (Information, Vocabulary, and Arithmetic), even though the non-brain-damaged group had a better absolute mean score in each instance. These were the three tests in which the examiner presented each item individually to each subject. The SSPT, in which the 60 items were presented individually but at a standard rate by a tape recorder, yielded a difference between the two groups with a probability of less than .02. The Henmon-Nelson Test, which required each participant to work independently for 30 minutes, yielded the most significant difference between the two groups ($p < .001$).

Inasmuch as the $T$-score transformations were based on the combined groups, and the overall scores for each test had been converted to comparable distributions with a mean of 50 and a standard deviation of 10, it was possible to compare $T$ scores distributions for any of the tests within each group. For example, did the subjects with brain damage perform more poorly, in the context of the two groups used in the study, on the Henmon-Nelson Test than on the Vocabulary subtest? Conversely, in the context of the brain-damaged and control groups, did the controls perform better on one test than on another? Our interest centered on the Henmon-Nelson Test because it had shown the most striking intergroup differences in the initial comparisons of the two groups (as

<table>
<thead>
<tr>
<th>Group</th>
<th>Information</th>
<th>Vocabulary</th>
<th>Arithmetic</th>
<th>SSPT</th>
<th>Henmon-Nelson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain Damaged</td>
<td>49.40</td>
<td>47.46</td>
<td>47.24</td>
<td>46.56</td>
<td>44.84</td>
</tr>
<tr>
<td>$SD$</td>
<td>10.65</td>
<td>10.10</td>
<td>8.95</td>
<td>9.48</td>
<td>8.29</td>
</tr>
<tr>
<td>Control</td>
<td>50.72</td>
<td>52.24</td>
<td>52.64</td>
<td>53.28</td>
<td>55.28</td>
</tr>
<tr>
<td>$SD$</td>
<td>9.02</td>
<td>9.23</td>
<td>10.20</td>
<td>9.23</td>
<td>8.74</td>
</tr>
<tr>
<td>$t$</td>
<td>0.47</td>
<td>1.64</td>
<td>1.99</td>
<td>2.54</td>
<td>4.33</td>
</tr>
<tr>
<td>$p$</td>
<td>&lt;.70</td>
<td>&lt;.20</td>
<td>&lt;.10</td>
<td>&lt;.02</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Note. SSPT = Speech-Sounds Perception Test.

*Subtests of the Wechsler Adult Intelligence Scale.
The comparisons of $T$-score distributions for the Henmon-Nelson versus the other tests is shown in Table 2 for both the group with brain damage and the control group. The question being asked was whether scores on the Henmon-Nelson were significantly poorer than scores on the other tests.

The results indicate that among the tests used in this study, $T$ scores for the Henmon-Nelson Test in the group with brain damage, were significantly poorer only on the Information subtest of the WAIS, although the probability level for Vocabulary was less than .10. Among the controls, however, the $T$ scores were significantly better on the Henmon-Nelson Test than $T$ scores on Information and Vocabulary.

The results presented in Tables 1 and 2 are summarized by the graphic representation in Figure 1.

Figure 1 makes it quite clear that intergroup differences increased progressively in accordance with the degree to which the five tests were judged to require conative ability.

Finally, the data analyses used in this study permitted determination of whether the differences between the two groups were significantly greater on one test than another. Again, since the Henmon-Nelson Test showed the most significant difference between the groups in the initial comparisons, our major interest was whether it was significantly more sensitive than the other tests. The $t$ ratios and probability values that present a basis for these conclusions is shown in Table 3.

Table 3 indicates that the Henmon-Nelson Test differentiated the groups significantly better than Information and Vocabulary, but not significantly better than Arithmetic and the SSPT. The SSPT, which ranked second in terms of its effectiveness, was not found to be significantly better than any of the other tests.

**DISCUSSION**

While the Information and Vocabulary subtests of the WAIS traditionally are not viewed as measures that are sensitive to brain damage, the Arithmetic subtest is generally considered to have some validity in this respect (Reitan & Wolfson, 1993). The SSPT, on the other hand, has generally been considered to be a measure that is sensitive to the effects of brain damage (Reitan & Wolfson, 1990, 1993), and this conclusion was confirmed in this study. It seems likely, however, that no one would have expected the Henmon-Nelson Test, at least in terms of its content and history, to be a highly effective instrument for this purpose—and, in terms of its content alone, we suspect that it is not.
Considering the orderly arrangement of the results of this study, it would appear that the hypothesis of the study has been strongly confirmed. Persons with brain damage appear to be significantly limited in their ability to mobilize and focus their intellectual energies to a specific task and maintain efficient and productive effort over time.

Except for interest in attention and very occasional references to vigilance, which do not equate to intellectual power, there has been little reference in the neuropsychological literature to the ability to initiate and sustain a high level of efficient problem-solving ability. Halstead (1945, 1947) was probably the last (and probably the only) person to identify this important capability as an integral aspect of brain functioning. A major part of his four-factor theory of biological intelligence was the Power factor, which he considered to be the energy source for production of intelligent behavior. The Power factor was viewed as linking background experiences and memory (the Central Integrative Field factor) to immediate problem-solving skills (the Abstraction factor), and serving...
essentially as the motor to energize sustained, productive intellectual functioning at a high level of efficiency.

Halstead (1947) was interested in identifying a biological basis for the Power factor, which he thought might be reflected by the extent to which the electrical activity of the brain could be “driven” by repetitive light flashes delivered to the retina. In his research on the Power factor, he also studied patients with myxedema as well as volunteers exposed to varying degrees of experimental anoxia, attempting to relate his neuropsychological measurements to various indices of metabolic function, alveolar gas tensions, cardiovascular changes, blood chemistry, peripheral blood flow, electroencephalograms, and psychiatric changes. No clear set of relationships emerged, and retrospectively we might well have expected such an outcome, considering the enormous complexity of the problem. A more promising initial approach might have been to document the existence of the progressive degeneration of intellectual efficiency over time in persons with brain damage as compared with control subjects, as has been investigated in this study.

The results of this study suggest that a power factor may well be a significant feature that differentiates the practical or (as Halstead put it in 1945) the usable intelligence of normal persons versus persons with brain damage. Halstead noted that differences in intellectual power differed even among normals, with persons of equivalent intellectual talents sometimes varying strikingly in their ability to pursue and persist in the solution of complex problems. While this variability may be motivationally determined, at least in part, the findings of this study, which demonstrate differing degrees of impairment of subjects with brain damage on different tests, argue that an important characteristic of brain damage is a loss of ability to focus, maintain, and apply intellectual power to tasks that are extended over time.

This interpretation of our data requires substantiation based on further research and documentation. It should be readily possible to design studies that test the question of progressive deterioration among persons with brain damage of intellectual efficiency over time, but it would be important to require a more intellectually demanding task than those usually employed in tests of attention. A study using the procedures of the Digit Symbol subtest, analyzed by determination and comparison of productive efficiency by time segment, might be a useful venture. Further exploration of this issue certainly seems to be required, considering the obvious practical implications of progressive and differential decay of intellectual capabilities, as a consequence of brain damage, when dealing with extended tasks.

The results of this study add to awareness of the overwhelming complexity of human brain–behavior relationships. It seems likely that the degree of impairment shown in any particular area may not only relate to the content of the test, but also to the extent that the subject’s per-

---

**TABLE 3**
Comparisons of Distributions of Differences in T-Scores for Brain-Damaged Versus Non-Brain-Damaged Groups for the Henmon-Nelson Test and Additional Variables

<table>
<thead>
<tr>
<th>Brain-Damaged vs. Non-Brain-Damaged</th>
<th>Henmon-Nelson vs. Information</th>
<th>Vocabulary</th>
<th>Arithmetic</th>
<th>SSPT</th>
</tr>
</thead>
<tbody>
<tr>
<td>t ratios</td>
<td>4.34</td>
<td>3.20</td>
<td>1.88</td>
<td>1.75</td>
</tr>
<tr>
<td>p</td>
<td>&lt;.001</td>
<td>&lt;.005</td>
<td>&lt;.10</td>
<td>&lt;.10</td>
</tr>
</tbody>
</table>

*Note. SSPT = Speech-Sounds Perception Test.
Subtests of the Wechsler Adult Intelligence Scale.*
formance depends on efficient application of intellectual power. In this case, adequate clinical assessment would require not only determination of ability levels, but also the client’s conative ability. The critical question, in ecological terms, may concern not only the client’s intellectual abilities, but the subject’s capacity to apply those intellectual abilities in a sustained and efficient manner. Adequate testing in clinical situations would need, at the least, to compare abilities on short, discrete tasks with possible deterioration of performances on tasks that required persistent application of intellectual energy over time. The Halstead-Reitan Battery (Reitan & Wolfson, 1993) already allows for certain comparisons of this type (e.g., comparison of scores on tests that require persistent effort, such as the TPT, with tests that can be completed with only a relatively short period of intensive intellectual energy, e.g., Trail Making Test).

Some neuropsychologists (Lezak, 1995) have recommended that the TPT does not need to be used because it may be overly difficult for some persons with brain damage. This comment fails to recognize the value, as clearly seen by Halstead many years ago, in testing the limits to which a subject can apply intellectual power.

The results of the current study suggest that the interrelationships of cognition, conation, motivation, and emotionality should be given further study within a neuropsychological frame of reference. Obviously, input from all four areas is highly significant for successful achievement, often in combination, but with some tasks, with far more dependence on one area than another. Understanding of these interrelationships is fundamental to reaching predictive capability regarding ecological outcome. Comprehensive assessment of the individual person obviously is necessary, not only in the customary neuropsychological domain of cognition and intelligence, but also with respect to conation, motivation, and emotional factors. The overall task is daunting, and it is probably quite understandable that we are not yet expert in predicting ecological outcome. This being the case, we should be cautious in both everyday interactions as well as professional clinical activities with regard to our conclusions.

Measurement of conative ability has many potential implications. While casually composed flexible test batteries have been criticized pointedly for their limitations in forensic settings (McCaffrey, Williams, Fisher, & Laing, 1977), it should also be recognized that the interrelationships of test results for the individual subject have great significance for a full neuropsychological understanding of the client. Using a casually composed battery of tests limits the possibility for comparative evaluation of the subject’s performances in a standardized manner.

Finally, additional evidence about the complexity of human brain–behavior relationships is relevant regarding existing pressures to use short or abbreviated test batteries. Such practices will only lead to diminution of neuropsychological understanding of the client, and in time, to corresponding diminution of the significance of assessments made by neuropsychologists and the status of the field. It would appear that we need to evaluate more, rather than fewer, dimensions of neuropsychological functioning in order to gain a clinical understanding of the individual patient. One of the best reasons for comprehensive neuropsychological assessment, and one of the poorest pieces of advice that can be given to the person with impaired conative and cognitive abilities, is the common admonition, “If you want it badly enough, you will find a way to achieve it.” If impaired conation and cognition are the limiting considerations, motivation will not be the answer.

**REFERENCES**


