Central Principles of Design

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INTRODUCTION

The 5 Dynamics system enables individuals to rapidly understand crucially important aspects of themselves and their colleagues, and more importantly, to *apply* them to make decisions, solve problems, and achieve goals. The system comprises:

- A model or construct for understanding and optimizing performance, communication, learning, and collaborating in a variety of contexts;
- A rapid "Starting Point" assessment that provides data to the system; • A series of Web-based tools that facilitate decisions about relations between people, as well as between people and their work.

Developed more than 30 years ago, and now coming to market as the first intensive toolset for dyads and teams, 5 Dynamics rests on a highly innovative and original approach to the design of psychometric instruments and their implementation to perform work.

5 Dynamics has undergone rigorous development and refinement, including a broad series of tests for validity and reliability. These are the subject of a separate Validity and Reliability White Paper.

FUNDAMENTAL PRINCIPLES OF 5 DYNAMICS

The 5 Dynamics system relies on a novel approach to testing, software tools and personal and group development. We have identified eight factors that we believe are important to an effective workplace tool:

1. A unified theory of human activity is most helpful, as opposed to disparate approaches for different activities such as learning and working.
2. Process or systems theory provides an excellent construct through which people can make meaning out of the assessment's output. This process model subsequently makes easier to apply the feedback to self-adapt perceptions and behavior.
3. Concepts such as energy-focus and time are intuitive and easy for untrained users to understand and implement.
4. We are predisposed toward strength-based approaches for most people, as we have empirically noticed that a positive sense of self-worth increases confidence and the ability to focus attention and energy.
5. In the workplace, shorter assessments are preferable to longer assessments if validity and reliability are not compromised.
6. The dyadic work form is extremely important, and ideally tools would address dyads as well as individual awareness.
7. Consistent with the principles of action learning, assessments with integrated work tools are more effective than stand-alone assessments.
8. Organizational complexity increases as more people become involved in an enterprise. It is beneficial to have a single model that is valid regardless of the complexity.

DISCUSSION

First, a "**unified theory"** of activity underpins the tool. That is to say, a ***single*** test and conceptual model would reveal individuals' and groups' preferences for three key human activities: *learning*, *working or doing* and *collaborating*. One test measures all three processes, and one set of language describes the findings.

The 5 Dynamics instrument was constructed to include a synthesis of other validated instruments that measured such variables as learning style, behavioral preferences, and cognitive preferences. It rigorously excluded any arbitrary elements of "personality." While we discuss neurophysiology toward the end of this white paper, the precise relationship of the synaptic and neuronal circuits is extremely complex. While science is making great advances in understanding the physiology and function of the brain, it remains an exceedingly complicated challenge. As long as the correlations between these processes can be measured by alternative instruments and also empirically observed and measured, we are comfortable with the conclusion that they do indeed exist.

An empirical example will illustrate the point. Consider an individual who is highly logical and analytic. This characteristic appears in the person's preferred modes of learning, working and collaborating. Such a person generally has a high need for order, structure and precision in all three areas. His or her learning style is best served with traditional approaches, including the logical and linear presentation of data, rote memorization, use of text books, course plans that follow a linear "A, then B, then C" structure, the presentation of material building only on previously learned data and not on intuition or abstract association, and no reliance on social learning practices such as role-playing and discussion groups. In the workplace, such a person tends to deal best with data and logical practices, timetables, budgets, non-intuitive problem solving and the like. As collaborators, they like clear lines of authority, formal structures and the communication of information on an as-needed basis. As contributors, their highly developed critical faculties provide the ability to foresee what will go *wrong* with any project.

As you can see, similar processes drive working, learning and collaborating. Our approach is influenced by the Gestalt school of psychology, which puts particular emphasis on perception, individual awareness and energy. In this light, one would state that the cognitive and behavioral functions of the person described in the preceding paragraph are driven by a particular filter of perceptions of the external world (logical, historical, data-based and non-intuitive), and also by a particular type of internal processing of those perceptions. In the language of systems theory, the inputs and transformations of such people drive a similar set of outputs. It is immaterial whether the venues for these outputs are the classroom, the office or the living room. The results are the same.

Second, **the model of systems or "process"** provides an excellent platform on which people can take the feedback from the assessment, make meaning from it, and apply it. Process is externally observable. It is, basically, how things get done. We have found that virtually everyone understands process without ambiguity or confusion. On the other hand, personality terms such as "Introversion or Extroversion" or more difficult to understand, and certainly much prone to misinterpretation by people who have not received specialized education in such matters.

Our model of process comprises five successive stages or Dynamics. The first four are measurable by our instrument. They can be verified by observation for behavioral and semantic clues. The Fifth Dynamic (Evaluate) is not a mental process that we measure.

Rather, it is the point in a just completed cycle of experience wherein a person judges the external success and internal fulfillment they achieved, and with hope, decides upon specific adjustments to improve the outcomes in the next similar cycle. How do people perform such subjective evaluations? Their style for this evaluation exercise is a product of their strongest preceding preference(s). For example, people with extreme energy around results, success, closure and material accomplishment tend to evaluate their performance in those terms. They may do this at the expense of other forms of evaluation, such as considering the effect of the work on other people, or the originality of the idea or the accuracy or correctness of the end-product.

All these processes, or cycles, run from perception to awareness of an idea or potentiality, to energizing the idea with other people, to developing a plan of action, to ultimate completion. People tend to proceed through these phases (5 Dynamics) in their own predictable patterns with respect to time, energy and focus. These patterns manifest themselves in the person's degree of commitment to those elements.

This suggests a sort of "internal systems approach" to human capital. By this we imply that every person has a preferred process for getting things done. For example, some people insist on reading the manual first; others will not read manuals at all. Some prefer to work through other people; others work around other people. Some feel great anxiety about embarking on projects with risky outcomes or unclear procedures; others are highly risk-tolerant.

We have found this model to be universally applicable to jobs, roles, or larger processes that businesses conduct. Everyone is familiar with the sales process, regardless of whether they enjoy engaging with it, so we have selected it to demonstrate how people naturally prefer to invest high or low amounts of time and energy at specific phases in a consistent, repeated pattern. Most complex sales fall into a cycle of five phases:

While each phase will include elements of successive phases, these are the five overall themes that inevitably appear in complex multi-party sales. We do not argue that sales processes must conform to this view of the world. Rather, we say that this flexible model must conform to any sales process. The practical implication of this last statement is the implication that customers would not have to change their way of doing business in order to accommodate productivity-enhancing tools. Effective human-capital tools must expect to conform to the marketplace, rather than to posit their success on the opposite expectation.

We would posit that individuals involved in the sales process (as well as teams of individuals) have distinct preferences in terms of which parts of this (or any) process they prefer to contribute. This holds true both on the vendor and customer sides. Beyond this preference, as a practical matter, they also need a simple language or construct by which they can understand their own behavior and preferences. This must easily lend itself to spoken and written communication so that groups can create common meaning around the tools.

In order to make these ideas comprehensible and applicable in the workplace without any special training, we have selected a construct based on a simplified expression of the Gestalt Cycle of Experience (Ideation and Awareness through Completion). This model articulates this cycle in layman's language to facilitate rapid understanding and propagation through customer organizations.

Third, **energy and focus** provide the foundation of the tools, rather than personality characteristics and traits. One of the difficulties of working with personality is that people make many attributions to "personality" without any clear agreement on what personality *is.* Researchers such as Gordon Allport have found 50 definitions of personality. Nonetheless, focusing on personality certainly is a dominant method for understanding people in the workplace.

While personality can offer valuable insights, it can be a difficult concept with which to work. There is little closer to the individual than his or her “personality.” People assume it to be immutable, and much more difficult to change than, say, behavior. Self-image and self-worth are often intrinsically bound up in one's perception of personality. Cognitive and perceptual phenomena are often (mis)attributed to "personality." The argot of personality is highly specialized, and may be unfamiliar to, or misused by, people who apply personality theory to make professional judgments in the workplace.

As a parallel or alternative approach, we suggest the use of the term "energy-focus." Energy has been well understood, and indeed, a dominant part of almost every culture, on every continent and in every epoch—except for North America in the 20 and 21st centuries! In China, for example, energetically-based acupuncture is ubiquitous. Focused energy is central to Buddhist beliefs. In India, the practice of yoga is based on an energetic linkage between physical routines and meditation, with effects on the brain’s alpha and beta waves that have been indisputably measured by countless electroencephalograms.

In the United States, Mihalyi Csikszentmihalyi has documented this neurological phenomenon under the term "flow state." He acknowledges that it shares a great deal with Tao and Zen Buddhism, concepts with have endured through thousands of years. Highly evolved practitioners of such knowledge-systems subject them to radically different standards and controls than those applied by much more recently by Western science. Meditative states provide radically different outputs on EEGs; this is universally agreed. How and why that happens is still unknown. To the Easterner, it is also likely a question of much less importance.

However, the construct of energy need not belong only to Eastern culture. Robert Quinn and Jane Dutton of the University of Michigan Business School define energy as "a type of positive affective arousal, which people can experience as emotion—short responses to specific events—or mood, longer lasting affective states that need not be a response to a specific event."[1]

Martin Seligman of the University of Pennsylvania has been developing these concepts under the aegis of "Positive Psychology." In 1996 he was elected president of the American Psychological Association by the widest margin in that organization's history. Considered in this light, the concept of energy becomes instantly self-identifiable, indeed universal. We invite readers to consider its centrality to high performance in any circumstance.

Fourth, **strength-based approaches** are highly effective in broadening people's perceptions and their predisposition to effect persistent behavioral change. In private self-assessments we find most people are more critical of themselves than other people are of them. (When asked to rank themselves publicly, the vast majority appear in the top "half.") Dealing with "weaknesses" or “gaps” both disempowers and de-motivates the majority of

[1] Their definition draws on work in psychology and sociology, including the concepts of energetic arousal (Thayer, 1989), emotional energy (Collins, 1993), subjective energy (Marks, 1977), positive affect (Watson, Clark, & Tellegen, 1988), vitality (Ryan & Frederick, 1977), and zest (Miller & Striver, 1997).

people. We have found that one's tolerance for criticism (e.g., references to "weaknesses" or "gaps") corresponds closely to a person's learning style, approach to competitiveness and orientation toward action. All three of these factors have a high degree of inter-correlation. For other groups criticism retards change and growth. Every reader has seen individuals who surprise us with unanticipated virtuoso performances under extreme or unexpected circumstances. Who is to say that they these individuals don't have talent in an area? Usually, however, this level of performance cannot be sustained without the person's feeling stress. So "weakness" is not circumstantially inevitable. Rather, it is context-specific. We believe the language of "preferences" is more conducive to progress.

Fifth, **the shorter the assessment, the easier it is to use in the workplace**. Time compression is of course a ubiquitous problem. We have noticed in the marketplace an expectation that most profound psychometric measurements must consume large periods of the assessment-taker's time in order to yield valid results. In almost every field (medicine, computing, process engineering, consumer services, etc.) "shorter" is better in consideration of the end-user's time. This is called "progress" or "innovation." The field of human assessment has generally been immune to this for the past half-century, although there is nothing inherent in field of psychometrics that renders a brief assessment less valid.

Perhaps not paradoxically, through successive generations of improvement, the 5 Dynamics assessment tool achieved progressively better validity and reliability scores as the number of items on the test *declined*. With high degrees of significance and confidence, as iterations reduced the items from 120 to 72 to 36 to 30 to 18, V&R rose each time. In fact, this became the central focus of development as the assessment went through its developmental iterations over the years. It was observed that many test-takers began to lose focus and engagement when they reached 24-28 items. Thus, it became a design objective to reduce the number of items below that threshold without sacrificing validity or reliability. As a practical matter, an assessment so short is highly beneficial in the workplace, where individuals' sense of time is acute.

Sixth, the **focus on dyads is highly important to productivity**. It has been estimated that as much as 80 percent of knowledge workers' time is spent in dyads or teams. Research early in the 20 century (Simmel, 1908) showed that the introduction of a third party caused a dyad to become formal and also restricted communication. Additional research has shown that in certain individual tasks the introduction of a partner leads to more innovative, efficient and satisfactory work outcomes. We believe it is therefore necessary for performance-based work tools to deal with this essential work unit.

Seventh, **a valid assessment alone is less than optimal.** In the human-capital area many vendors are positioning their message to suggest that they sell the "so-what" that follows the "what." This is another way of saying that valid assessments do offer insights, but without a clear path to applicability, insight alone will not drive improved performance. Apart from product complexity, a barrier to higher utility for insight-only tools is their implicit requirement for deductive knowledge. When tools become the exclusive province of consultants, they create an ultimately unsustainable dependency with the client. The point of any assessment, therefore, ought to provide information tools that end-users can use for routine but important business challenges that arise. In this context, consultants and managers can tend to their intended role of providing high-level expertise in complex or high-risk situations.

Eighth, **tools ought to be extensible throughout an organization** without altering their basic construct. By this we mean that what proves effective for the individual ought to be easily communicable and effective for dyads and teams. Correspondingly, what works for

dyads should apply to teams. In the 21 century workplace, teams are becoming the predominant work form, and cross-functional, cross-cultural, and virtual teams are commonplace as business becomes more decentralized, fluid and complex. Departments are essentially teams of teams. They are increasingly heterogeneous with respect to organizational boundaries. For all these reasons, it becomes important, therefore, to have a common language of practice. The language of personality, with its multiple definitions and inherent cultural biases, becomes problematic in such circumstances. Rather, a simple universal terminology, based on easily observable phenomena, is conducive to communication, resolution of interpersonal issues and higher productivity. As we have often been asked about the development of this unique approach, this paper will trace its development beginning in the mid 1960s, and will describe why it provides so much utility to users.

THE ORIGINS OF THE 5 DYNAMICS SYSTEM

During the 1960s, much of the psychometric community was preoccupied with studies of the authoritarian personality. This was of course a very popular topic at the time, due to World War II and the Cold War. While studies like Milgram's shock experiment and Zimbardo's mock prison received great publicity, many other lesser-publicized academics were pursuing research on their own. W. Michael Sturm, 5 Dynamics' founder, attended American International College where he began experiments into authoritarian personality types.

His advisor at that time was Dr. Richard Sprinthall, (who subsequently wrote the critically acclaimed textbook on statistical methods for psychometrics) who, like Sturm was interested in psychometics and the authoritarian personality. In doing this research, Sturm looked at two specific tools about the authoritarian personality: the F-test of T.W. Adorno, http://en.wikipedia.org/wiki/F-scale) and the Dogmatism Test by Milton Rokeach, http://hirr.hartsem.edu/ency/Rokeach.html

Those two instruments familiarized him with scalar approaches to belief systems. At the same time he was working on the Locus of Control assessment of Julian Rotter, which measured the degree to which people believe the origin of behavioral reinforcement is internally or externally generated (Julian Rotter http://psych.fullerton.edu/jmearns/rotter.htm). Rotter also heavily influenced clinical psychology with the thesis that personality is the interaction of the individual's drives with the environment, and thus was context-sensitive rather than absolute. Sturm also worked extensively with two of the major learning-style assessments, the Wechsler Adult Intelligence Scale (WAIS), which measured verbal and performance IQs, and the Wechsler Intelligence Scale for Children (WISC). The combination of studies provided a new understanding of the dogmatism F-test as well as grounding in learning theory.

Sturm was able to look at testing in an unusual way because he approached it as a social psychologist rather than as a clinical counseling psychologist. The difference is critical: Clinical psychologists test X to measure X. Social psychologists put people in situations where they think they are doing X, but they are really doing Y. To social psychologists, the ultimate score isn't nearly as important as watching the *process* of the person undertaking the experiment.

Consistent with the principles of social psychology, the process through which people work becomes more important than the ultimate result. The majority of people's lives is not spent in outcomes, but in the journey toward achieving them. Observations of these journeys, or processes, therefore yield much more information than ultimate outcomes or

scores. In part as a consequence of this belief, 5 Dynamics' tools are process-based: they examine *how* a person works, not just what his or her ultimate output might be.

At this time, Sturm also became involved with the Quaker Movement in Boston and Cambridge. The Quakers put great emphasis on "active witnessing" which involves simultaneous external and internal focus. This practice subsequently became useful in the development of the 5 Dynamics assessment; by watching thousands of people take assessments, he observed that most people's attention broke between the 24 and 28th items. It became a long-term goal, therefore, to reduce the number of items in any test to 24 or fewer. This work culminated in a lead article in the *Journal of Social Psychology* under the name of Richard Sprinthall who was his faculty advisor.

The experience also afforded a perspective of process long before the notion of process was considered important. Sturm pursued his doctoral thesis at the University of Missouri under Dr. Charles Krauskopf (http://www.pasf.org/cases.htm#booklink) who had been working on a test called the Personality Assessment System (PAS) that stemmed from the research of John Gittinger and David Saunders (http://www.pasf.org/gitt.htm).

The PAS studies the relationship between intelligence and other personality variables as they interact to influence human behavior. It was closely related to the WAIS or the WISC-R, albeit translated into a statistical analysis that enabled a psychologist to determine where a person would appear on scales—such as regulated or flexible, internal or external, a la Rotter, or role-adaptive or unadaptive. The PAS also included the concept of energy and it was contextually predictive. It enables the prediction of human behavior. Ultimately this test was extensively used by Fortune 500 executives for high-level staffing.

There were many correlations between the PAS and the Wechsler tests, so Sturm set the goal of bringing some of the PAS concepts back to learning, which had been a lifelong passion. He began observing the patterns of test takers when he administered instruments such as the Ravens Progressive Matrices (a visual test), or the WISC-R or the WAIS, or the Slossen Verbal/Oral Test, or a spelling/writing example. He methodically mapped out the process that the student applied to complete the test. Over a period of time he began to see patterns in these behaviors as well as correlations between the patterns and the test outcomes. However, the process often delivered more information than the test score. For example, children approach tasks in a particular way based *not* on what they have learned, but on how they naturally go about doing things. He also observed the same phenomenon with adults.

Sturm began fashioning his own test instrument with a set of polarities different from those of Gittinger and Saunders. These had to do with learning, but also with focus and energy.

PAS	5 DYNAMICS
Externalizer/Internalizer	Focuses on Details / Focuses on Whole
Rigid / Flexible	Verbal / Visual and Touch
Acceptable / Unacceptable	Logical / Intuitive
	Factual / Imaginative
	Sequential / Associative

	Relates rationally / Relates empathetically
	Time-oriented / Space-oriented
	Thinking-oriented / Action-oriented

These disparate scales, however, considered severally do not tell a coherent story. Sturm also was able to deduce patterns, or clusters of scores that fit meaningfully large subgroups. These clusters are quite important, because they enable an assessment to make deductive inferences.

In common language, the terms left-brained and right-brained describe certain combinations of traits or patterns. In point of fact, only 67 percent of “right-brain-dominant” people are left-handed. The traits associated with one hemisphere might also be located in the other hemisphere, as a product of genetics and hormonal activity. Moreover, many brain functions are so complex as to be carried out in both hemispheres, sometimes serially and sometimes in parallel. The terms “left-brain dominant” and “right-brain dominant” are able to convey meaning, even though their literal physiological underpinnings may be suspect. Sturm was able to identify similar patterns and overlay them on a series of polarities and an understandable sequence – producing a simplified version of the Gestalt Cycle of Experience.

By this time Sturm had become a differential diagnostician for learning differences. The prevailing belief at this time was that children who performed poorly in school were either brain damaged or learning disabled. Sturm again took a contrarian view: they were learning-*different* and likely brain-different. He found that if he understood a child’s learning process, and matched it to a teacher with a similar process, and also helped the parents adapt to the process, the results were remarkably successful. The theory culminated when he became director of Special Education for three school districts in the State of Maine, and in three years raised the reading levels of the special education students by 3.5 years.

He observed how children would actively engage in certain types of learning activities and then would pull back from other parts of the process. That engagement he termed “energy” and the energetic shift determined more about a student’s success than did anything else in the process.

He spent three years with at the Gestalt Institute of Cleveland under the direction of Edwin Nevis. Gestalt psychology is both process- and energetically-based, and so there was a natural concordance between Sturm’s prior work and that of the Gestalt Institute’s. At that time, the concept of resistance held much sway in Gestalt circles. Sturm did not accord nearly as much weight to resistance (His view since has become mainstream.) and rather saw resistance as an energetic phenomenon. As he saw it, people didn’t expend energy to stop something. Rather, they did not have the energy to *complete* something. That requisite energy was invested elsewhere. This also conflicted with some of the pathological basis of Gestalt theory in those years. Sturm viewed people’s fundamental processes as open to improvement, but not wholesale change. “Resistance”, for example, was usually an outcome of selective perception and inadequate energy to move through the Cycle, as opposed to neurosis or psychosis.

Upon graduating from the Gestalt Institute in 1983, he began working in earnest on the assessment that is in use today. He became grounded in L.L. Thurston’s theory of “just noticeable differences.” This is a statistical technique for measuring how people make decisions along a continuous spectrum when the differences between items can be very

small. It applies to physical phenomena such as weights of objects, as well as to attitudes and opinions. The choice they make is almost invariably right, but when the items are close together, they choose in an unconscious fashion.

In light of Sturm's prior experiences as a social psychologist, this was a fitting statistical approach. At the point of just noticeable differences, a person cannot really think about, verbalize or be aware of what he or she really is doing. This understanding goes far to assure a more valid result.

The choices of words on the assessment Sturm developed were the product of countless hours of experimentation. In selecting the words, Sturm presented thousands of words to people, asking them to rate the reaction they caused on a seven-point Likert scale. By continuously paring out the terms that fell between the two tails, he was able to reduce the population of words. Meanwhile, through observation, assessment, third-party evaluations and interviews, he was able to correlate the selection of words to the energy, preferences and learning styles of his test-taking population. As this was done without the availability of personal computers, the process was extremely laborious.

Consecutive iterations of the assessment reduced the number of items from 1200 to 120 to 72 to 36 to 24 to 18. With each successive reduction, the measurements of validity and reliability actually *rose*.

In a sense, the test is neither rationally assembled nor rationally completed. It is based on elicited response of emotions provoked by specific terms. This is *not* a cognitive form of self-examination. At the same time, people do not behave in a cognitive way because fundamentally they are not rational. People complete the assessment by making neurophysiologic "choices," below their cognitive level.

NEUROPHYSIOLOGY

The brain comprises only 4% of body mass but consumes 20% or more of blood glucose, the compound which the body converts to create muscular and mental activity. In this sense, the brain is inherently inefficient, and thus it seeks to conserve energy through the principle of synaptic efficiency; it has been demonstrated that the brain tends to route neural messages along the most efficient (electrically least resistive) pathways. Applying this principle to the 5 Dynamics assessment, we see that the socially oriented person will "see" the socially oriented word foremost; this occurs because the neural pathways of the brain that control social function are the most efficient. Thus, the brain selects the socially oriented word and sends it to the parts of the brain that understand socialization. These connections have been corroborated by cross-validating 5 Dynamics' instruments with other independent assessments. (See the Validity & Reliability Summary.)

Unlike some traditional assessment tools that attempt to label and measure aptitude, competencies, or personality features, 5 Dynamics' assessment is architected on a radically different model. In terms of current understandings of brain function, the working hypothesis is that when presented with a computer-based assessment containing a selection of words, the brain registers all of the words, but only one of them may, for example, correspond most closely to a person's preferred way of doing things. The brain is a top-down processor that seeks to recognize what it already knows. Life experiences and positive reinforcement lead to the formation of neural networks that react to the presentation of particular stimulus patterns. Limbic-frontal connections in the brain provide positive emotional valence for a preferred stimulus resulting in an "Ah-ha experience" as described in the Gestalt theory of perception.

Thus the subject perceives the socially oriented word as most charged with energy and activates the neural networks for a positive response to socialization. In a broader sense, it is hypothesized that the destinations of these messages control the individual's preferred modalities of perceiving, learning, doing and collaborating. Discrimination and decision-making are pre-frontal brain functions, but these activities are always colored by the energetic charge that the limbic (emotional) brain provides through direct connections of the limbic system to frontal areas. In order to cut through the noise of additional words presented by Thurston pairs, the input pathways probably activate limbic pathways to a critical threshold and, hence, achieve an emotional charge that leads to the selection of one word out of the four.

This is not a conscious process although the mind subsequently rationalizes the choice by applying reason or logic to it through post-hoc attributions of value and meaning. (Secondary neural value-laden and overly\cognitive consideration is to some degree responsible for the assessment's validity in light of its relative brevity. In addition, the Web-delivered assessment measures the latency between choices. The longer the latency, the more conflicted the test-taker is, i.e., there may be conflicting outcomes from several competing neural networks. This can be filtered recursively back into the scoring algorithm. Likewise, a rapid choice suggests a strong discriminant process and a clear preference for one modality over others. Or, again, there are fewer conflicting networks and the dominant network requires less time to assert itself as the choice-maker.)

ABOUT THE AUTHORS

Michael Sturm, Founder and Chairman. Mike's professional training includes the fields of social, counseling, Gestalt, learning and educational psychology. Mike has a M.A. in Psychology and worked on his Ph.D. in Psychology at the University of Missouri. He has over 20 years experience in education, serving in roles as a Teacher, Principal, Differential Learning Diagnostician, Director of Services for Exceptional Children and Director of Creative Learning at the elementary, junior/senior high and adult levels. He has taught in, directed or founded schools/programs in traditional, British Primary, open classroom or creative learning and arts. He began working with assessments in the early 1960's focusing on communications and learning.

Dr. Peter L. Nelson, Research Director. Peter is a psychologist and social scientist with a deep background in statistics and neurobiology. His work began with psycho -physiological studies of the human brain with particular regard to the processes of consciousness, arousal and perception. This interest led to participation in research projects in neuroscience in the United States, England and Denmark. By the early 1980s, Dr. Nelson had become a social scientist focusing his research on how people experience and understand reality—whether seen through the visions of mystics or the daily perceptions of businessmen and businesswomen. Since then, he has worked for governments, non-profits and businesses as a research consultant on projects ranging from end-user ethnography and U.S. national surveys to usability research and corporate cultural analysis. He is the author of numerous refereed articles in professional journals, as well as several books.