



# UNCOVERING TRAINING CHALLENGES WITH BRAIN IMAGING

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As talent managers, you are held responsible for making observable changes in your clients or staff. What if you could uncover a trainee's hidden beliefs silently undermining your efforts? TTI's Center for Applied Cognitive Research is doing just that, and the results will help you better understand your consulting interactions and solve many of your training dilemmas.

Let's start with some of our findings regarding TriMetrix® DNA™, soft skill assessment and then we can provide insights into the protocol uses to reach these new understandings.

## Findings in a Nutshell

**Our research affirms skills are experience-based and tied directly to emotional reactions.** These emotional attachments can be affirmations or aversions. That means you can have positive acceptance to a soft skill or you can have a very negative subconscious reaction. Lastly, if you have had little or no exposure to a skill, you simply may not have any emotional or memory connection to that skill. In that case, there is little to no brain reaction, no meaningful neurological response.

For example, let's say you are challenged to help develop leadership qualities in a company's CEO. You consider numerous activities and informational programs at your disposal to develop the needed skills. But how do you know what will be the most effective? How do you decide?

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Our discoveries indicate that before you begin any program, your first and most important step is to assess the CEO for any negative self-doubts and personal beliefs that would sidetrack your every effort. **Once you uncover what the brain is actually open to building, you can design a training plan that will accomplish the desired leadership quality development.**



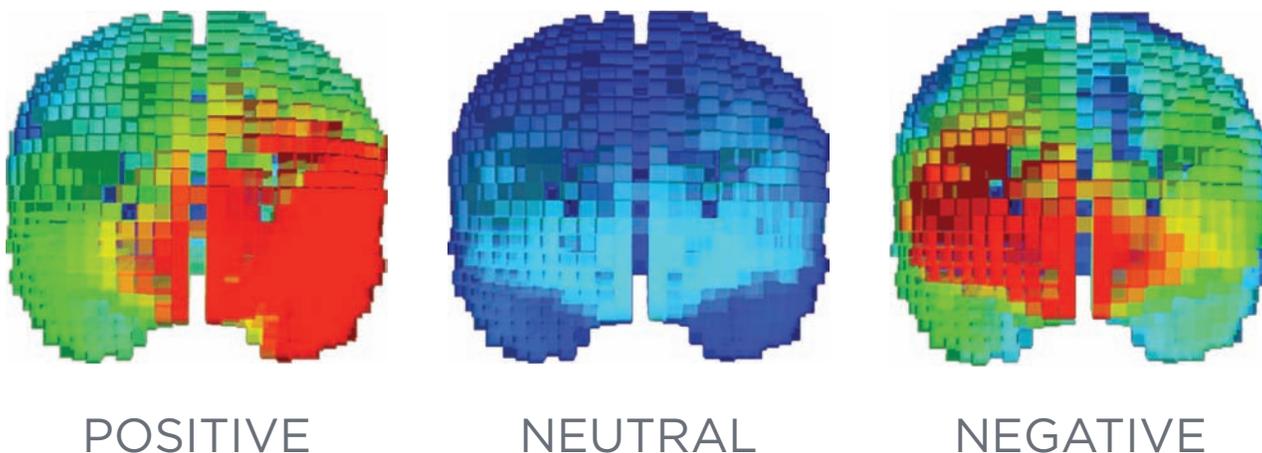
## Implications

**The big takeaway is that some marginally developed skills may be extremely difficult to be more proficient in, due to negative subconscious emotional baggage people unknowingly hold on to as deep beliefs about themselves.** When a client holds strong beliefs, it may be easier to develop skills for which they have little or no previous experience than to tackle a developmental plan encumbered by self-doubt or worse, total aversion to the concept. Here's how we reached this conclusion.

## Research Bases of Findings

Each of our assessment tools is not only validated through time-tested statistical analysis, but **we run correlational studies using brain imaging to verify that what a person reports on a survey can in fact be traced to real-time brain activity.** Our patent-pending process provides quantitative and qualitative evaluation of the brain's reaction to each survey stimulus. The VIDE (Validating Ipsative Decision-making with Electroencephalography) process not only provides the intensity of a person's emotional response to a stimulus by measuring voxel activation, but also provides emotional directionality by differentiating approach/withdrawal responses within the prefrontal cortex, as first described by Davidson & al, 1990. Figure 1 shows an emotional response to three different stimuli. (The brain image is facing you, so the left hemisphere image is on your right.) A relative balance in gamma waves creating symmetry in the activity in the frontal lobes is associated with normal mood and emotional state (the middle image). Increased activity within the left prefrontal cortex can indicate an elevation in mood and positive feelings (the far left image below). De-activation in the left prefrontal cortex alone or in combination with an increase in activity within the right prefrontal cortex can suggest the opposite, being associated with depressive mood or negative thoughts or aversion to the concept. Thus, we can group our brain images into one of three stimuli responses; acceptance or a positive response: a neutral or mixed response or an aversion or negative reaction.

*Figure 1*

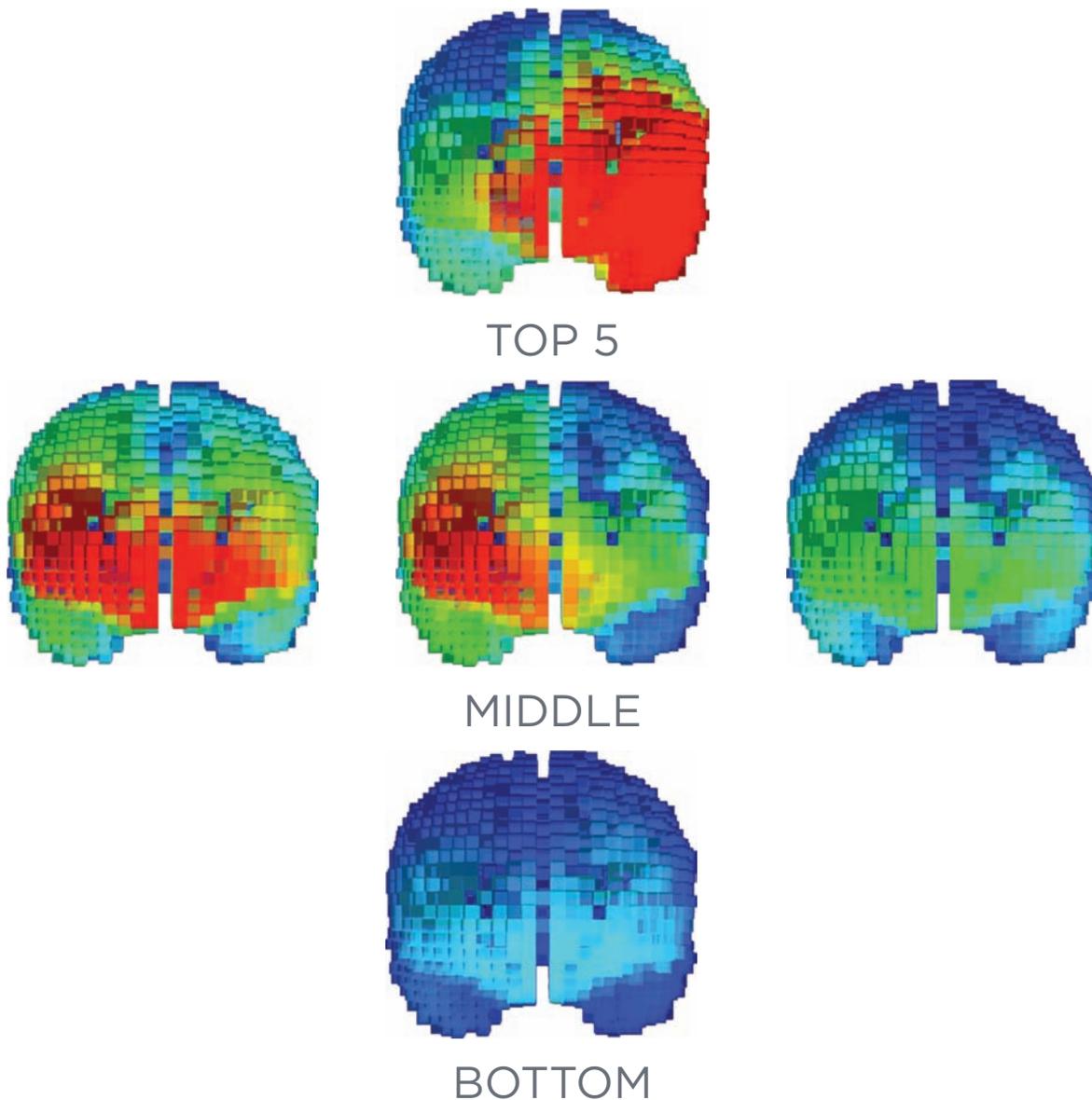




### Applying this Imaging Process to Our TriMetrix® DNA™ 23 Workplace Soft Skills

**Three outcomes emerge from our skill level research.** (See Figure 2 below for samples of the three emerging group reactions.) First, when you respond to a survey about your skills as part of TTISI assessments, your brain images are in agreement regarding the top five skills, almost 100% of the time. Second and just as significant, is the reaction to those skills with some mastery that fall in the middle range of a list of skills. The brain imaging shows mixed reactions with some being more positive, some more negative and some with mixed response. The third grouping involves those skills a person has stated on the survey that they do not possess. And guess what? The brain imaging suggest they have had very little or no experience with the concept and thus, no emotional connection. The brain reacts with minimal activity.

*Figure 2: SAMPLE IMAGES FROM THE TRIMETRIX® DNA™ 23 SOFT SKILL ASSESSMENT*





Note how the sample from the top five soft skills shows a strong left prefrontal cortex gamma response, demonstrating concept agreement or acceptance. The middle three images depict three different reactions associated with those skills with some mastery. From left to right you see an image with a great deal of red on both sides, showing recognition, but a mixed reaction. The middle image actually shows a negative response and the right image show again recognition but a mix reaction. Then we see a sample from the lower ranking skills. Here we find reduced brain activity. This can only occur when the brain is unable to connect with any emotional recall and thus we see little reaction.

**In summary,** the brain's lack of emotional attachment to those bottom level skills may leave the person more open to developing these skills than those in the middle range that carry the baggage of deep negative emotional beliefs that would need to be unearthed and put aside before they are even open to skill development activities.

The process can be used, as is the case in this report, for examining mental processes but also has the potential for immediate open dialog with a client concerning issues that may become evident from this real time mental imaging, as described in Collura, Bonnstetter, Zalaquett, (2014) as well as Collura, T.F., Bonnstetter, R., Zalaquett, C., & Chatters, S (2014). Further explanation of the basic setup and procedures used for data collection can be found in Bonnstetter, Collura, Hebets, Bonnstetter, (2012).

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TTI SI is constantly looking beyond the symptoms and exposing the causes behind decision-making and human interactions. Our assessments and unique patent pending neurological validation approaches makes our Science of Self™ assessment tools ready for you to transform your clients and your business.



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## References:

*Bonnstetter RJ, Collura T, Hebets D, Bonnstetter BJ. Uncovering the belief behind the action. Neuro Connections. Winter 2012:20-23.*

*Collura, T.F., Bonnstetter, R., Zalaquett, C. (December, 2014). Seeing inside the client's mind. Counseling Today.*

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*Davidson RJ, Ekman P, Saron CD, Senulis JA, Friesen WV. (1990) Approach-withdrawal and cerebral asymmetry: emotional expression and brain physiology, I. J Pers Soc Psychol.; 58 (2): 330-341.*