What Are Neuroassessments?

And Will They Disrupt the Testing Industry?

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2016

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Our current assessments tend to consist of variations of true/false, multiple-choice, and performance assessments. Neuroassessments, on the other hand, are designed to measure functions and structures of the brain such as brain images, eye movements, brain waves, and hormonal activity – they may also include intelligence tests and the Halstead-Reitan Battery. Research has shown that these brain functions and structures directly affect our behaviours, emotions, and other functions and performance. To illustrate, take the famous case study of Phineas Gage. Gage was working with explosives when a tamping iron shot through his skull, thereby damaging a section of his brain. Although his job competence was unchanged, Gage's emotional regulation was affected to the point at which he was socially unable to return to work.

What Are Some Current Applications?

There are many historical citations of Neuroassessments, but the modern day Neuroassessments began with Broca and expressive language by observing stroke patients. Broca, and later Wernicke, identified specific brain functions that were related to cognitive ability. Neuroassessments such as Wechsler's intelligence test, Halstead-Reitan's Battery, and others can effectively be used to assess expressive and receptive language to determine if a stroke patient is qualified to return to their job. And while there are many applications in clinical, employment and some educational settings, there is a notable absence of these Neuroassessments applications in certification and licensure. Looking more closely, one study may have significant implications for the certification and licensure community to consider. A recent study examined the differences in brain structure and functionality between competent and experienced London cab drivers, compared to less competent and experienced London cab drivers. These researchers found that the cab drivers with more experience had different brain structures and functions than less experienced and competent cab drivers.[1]

What Are Some Future Applications?

We believe that the future of assessments will increasingly rely on measuring brain activity, functions, and structures. Furthermore, we believe that brain imaging, eye tracking, and brain activity measures will show competent individuals more accurately, quickly, and easily than any other assessments, including multiple-choice examinations. In the near future, test publishers and examiners may detect cheating by using eye tracking, imaging, and/or hormonal levels instead of observations, video recording, and forensic analysis of their scores. These products may become a reality in our lifetime, and competency will be configuring software modules to be uploaded accurately and properly.

Do We Believe That Neuroassessments Will Be the Next Disruptive Innovation?

Yes. We believe that Neuroassessments will eventually replace the cost-effectiveness of a multiple-choice exam as the availability of these tests increase, and the costs decrease. At this moment, we would like you to consider that a $400 device that reads your brain waves and "plugs" into your smart phone can be purchased online. This relatively affordable brain device has implications for the assessment community, such as differentiating between high and low job performers and incorporating proper emotional and cognitive functioning. If this kind of tool exists today, one can only imagine the technological advances in the next few years that will improve their portability, affordability, accessibility, and applications.

AERE is conducting Neuroassessments pilot studies among certified individuals.

Please contact us if you are interested.

[1] http://www.scientificamerican.com/article/london-taxi-memory/