Physiological measurements have become more popular in Psychological research over the past ten years. These advancements allowed different objective sensors to become another measurement tool in a scientific arsenal of collecting data. Traditionally, performance and after task subjective measures have been used for most studies in Psychological research. With the opportunity to use these subjective measures along with objective measures, more data can be collected during research and therefore potentially produce better quality conclusions.

Eye Tracking (ET), functional near infrared (fNIR), transcranial Doppler ultrasound (TCD), electrocardiogram (EKG) and the electroencephalogram (EEG) have shown great promise in their ability to produce reliable and powerful objective data for research. Consequently, these devices are being used at the same time. The simultaneous use has the potential for interference between devices. Further, these devices are used on human subjects who can find these devices uncomfortable. These issues have the ability to skew data simply due to the measurement devices used.

The effort of this study was to determine if the above devices could be used simultaneously without affecting their data quality, determine if difference combinations are more or less beneficial and determine if the combination of sensors have an effect on participant experience. A negative effect from discomfort has the potential to effect data. A study was conducted utilizing the ET, EEG, EKG, fNIR and TCD together in various combinations and also alone to determine if data is compromised and to determine if the combinations have an effect on participant experience while engaged in a Neuromarketing task.

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Approved for distribution by Lauren Reinerman-Jones, Committee Chair, on October 17, 2018.

The public is welcome to attend.