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**NEUROPSYCHOLOGICAL ASSESSMENT  
OF COGNITIVE FUNCTIONING IN INDIVIDUALS  
WITH EXPRESSIVE DISABILITIES IN ADDITION TO  
TRAUMATIC BRAIN INJURIES**

A dissertation presented in partial fulfilment of  
the requirements of the degree of Doctor of Philosophy  
in Psychology at Massey University.

**Duncan Ross Babbage**

**2000**



He will wipe every tear from their eyes.  
There will be no more death or mourning or crying or pain,  
for the old order of things has passed away.

— The Bible, Revelation 21:4



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## ABSTRACT

This research programme focussed on individuals who have severe physical and sensory disabilities that interfere with standard neuropsychological assessment. Current assessment guidelines when working with people who have such disabilities were examined, which revealed that while various suggestions have been made, much work is required to empirically evaluate the most appropriate procedures for conducting such assessments. The current research was an attempt to further examine these issues.

The first study, a retrospective review of a cohort of individuals referred for neuropsychological assessment after traumatic brain injury, was conducted to determine the focus population for the research. Based on this review, the research was limited to individuals who (in addition to traumatic brain injuries) had severe *expressive* disabilities. That meant they were unable to speak, write, draw, or manipulate test materials—the common modalities for making responses in neuropsychological assessment of cognitive functioning. This review also examined the types of adaptations to standard measures that were required in order to assess such individuals.

The research questions related to whether a comprehensive assessment across the domains of cognitive functioning could be undertaken with people in this group. Therefore, *comprehensive* cognitive assessment had to be defined. The next study therefore examined the issue of what constitutes a comprehensive neuropsychological assessment of cognitive functioning, by evaluating the domains into which researchers divided cognition in their journal articles. All articles published in four neuropsychology journals over a 12-month period were reviewed. Based on this information, a formulation of the domains of cognitive functioning was developed.

In the third study was a survey of neuropsychological practitioners, in which a case vignette of an individual with severe expressive disabilities was presented. Respondents were asked to discuss the assessment strategies they would use in such

a case. In addition, the survey examined whether clinicians divided the assessment of cognitive functioning into the same domains identified in the earlier journal review. The case vignette discussions provided suggestions regarding assessment strategies for people with expressive disabilities. The survey provided support for the earlier formulation of the domains of cognitive functioning developed from the research review. This formulation was used, therefore, in selecting the domains to be assessed in the final clinical phase of the research.

Based on these studies, a group of measures was selected and adapted that would be suitable for the assessment of cognitive functioning in individuals with expressive disabilities. These measures covered a broad range of cognitive domains allowing for as comprehensive an assessment as possible, while not requiring an examinee to speak, write, draw, or manipulate test materials. Rather, an examinee was required only to select from multiple-choice answers by pointing, or in some cases to spell out answers on an alphabet board.

These measures were administered to three groups of participants: individuals with expressive disabilities in addition to traumatic brain injuries, individuals with traumatic brain injury alone, and a healthy normative group. To examine the psychometric properties of these measures, a group of comparison measures, administered in their standard formats, was also included in the protocol. These tests were selected to measure the same constructs as the adapted measures, and were used to provide a benchmark against which performance on the new measures could be evaluated. As these comparison measures were administered in standard format, they could only be administered to the non-disabled participants. To evaluate further the adapted measures, some participants were seen for follow-up assessments two to four weeks after their initial assessments, and the adapted measures were re-administered.

Internal consistency and test-retest reliability of the measures were investigated, and concurrent, construct and discriminant validity were also examined. The measures in this protocol were generally found to be reliable and valid neuropsychological assessment instruments and the results provided support for the types of adaptations trialed in this research. The performances of individuals with expressive disabilities

were examined closely, which indicated that people with these disabilities were able to manage the task requirements of the adapted tests and that the tests were generally of appropriate difficulty. Qualitative aspects of conducting assessments with people with expressive disabilities were also discussed.

Based on the performance of individuals in the normative group, preliminary norms were presented as both standard scores and percentile scores. These data were presented so that clinicians using the adapted measures described in this research could compare examinees to a reference group. However, the adaptations could not be considered fully standardised measures and the limitations of both the tests and the norms were discussed.

The final section reviewed the aims that were outlined at the beginning of this research programme. Each of the 20 objectives of the research were met. The research provided clinically relevant information about working with people with severe expressive disabilities, was conducted in an ethical manner, which considered carefully the specific needs of participants, particularly those with severe disabilities, and did so in a manner that maintained scientific rigour and objectivity.



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I would also like to note that during the final write-up stage of this research I have begun considering a new hypothesis (unrelated to the current project). After the success of many long writing sessions into the small hours of the morning, I have postulated that procrastination may be solar powered. A focus for future research?



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