Connectivity Problems in Children with Intellectual Disabilities (ID)

Norsiah Fauzan and Nur hurunain Amran
***nursiahfauzan@gmail.com*, *nainamran@gmail.com*,**
Faculty of cognitive Science and Human Development,
University Malaysia Sarawak,94300, Kota Samarahan Sarawak Malaysia

Introduction

This article highlight the importance of understanding the neurological basis of the children with intellectual disabilities (ID) by analysing their brain wave frequencies obtained from EEG recordings. The mild intellectual disability children tend to have more delayed development in academic, social, and adaptive skills as reflected in low achievement across content and skill areas as well as lower scores on measures of intelligence and adaptive behaviour. The brain topography were obtained from Quantitative Electroencephalograph (QEEG) which was used as a tool to record the electrical activity within the brain channel and to look at the dynamic changes taking place throughout the brain. The brainwave depicted in the electrical activities of the brain produced electrical pattern known as brainwave pattern. These pattern indicates whether the area of the brain function properly and efficiently or to look at the hypoconnectivity and hyperconnectivity in various areas of the brain.

Method

In this research, two participants with mild intellectual disabilities were purposely selected for analysis of brain topography acquired from QEEG. Both participants volunteered for the Neurofeedback Training and thereafter QEEG was conducted before the application of the suggested protocol by the expert. The informed consent and relevant information related to their medical history and cognitive performance were obtained from their parents.

Instrumentation: Quantitative electroencephalograph **(QEEG)** were used to record the electrical activity of the brain in order to obtain the brain topography of the participants for analysis.

Findings and Discussion

The following two cases of ID children provide exemplars on the use of QEEG to analyse the connectivity problems and brain functioning of mild ID children.

Case 1

Figure 2 displays the result of topographical mappings for case one (participant A) and Figure 3 for case two. The EEG data were artifacted (muscles, eye and other artifacts) and removed from the data sets before converted with digital filtering. Analysis were performed and converted into topographical maps for visual display purposes.