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## Learning about higher cognitive functions through the art of encephalography and brain dynamics movies

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This presentation describes the development and use of the art of encephalography in a new and more advanced way, whereby this qualitative tool where large quantities of brain data images are processed and converted into brain dynamics movie and then displayed for the purpose of visual discrimination associated with the different brain cognitive states, as well as the different stages of cognitive processes related to the cycle of creation of knowledge and meaning. The methodology we present is inspired by the art of encephalography, where this art is enhanced from the mere plotting of brain signals in the time domain to spatio-temporal frames that when presented in a sequence of plots, produces a brain dynamics movie which allows to visualize different patterns of behavior in different conditions produced by different stimuli based on experimental data. By careful observation of each of these movies, we learn to identify different structures and visual patterns where large-scale synchronizations and de-synchronizations are observed across different frequency bands. These movies also allow us to explore the temporal evolution of these spatial brain patterns where we can identify the different stages in the manifestation of the hypothesized cycle of creation of knowledge and meaning. We conjecture that movie viewing, will allow a better understanding of learning and adaptation. In summary, we can say that viewing brain dynamics movies will allow a significant impression of: Brain events for different measurement; brain events across bands and; the different stages of the cycle of creation of knowledge and meaning. The research team at The Embassy of Peace in Whitianga, New Zealand accomplished this work in close collaboration with Walter J. Freeman and Robert Kozma.

### Biography

J J Joshua Davis is experienced as a Decision Analyst and Strategic Planner for banks, oil companies, consulting firms and family business. He lectured for several years in the fields of Systems Thinking, Computer Simulation, Chaos Theory, Fractal Geometry, Decision Making and Systems Dynamics. From 1994 onwards, after a set of meaningful spiritual experiences, he spent many years travelling as an Ambassador of Peace around the world. Since 1998, he has worked in research concerning decision making and consciousness and published a thesis, "The Brain of Melchizedek, A Cognitive Neuroscience Approach to Spirituality". Recently, he has been researching in close collaboration with Grant Gillett, Robert Kozma, Walter Freeman and Paul Werbos in the areas of Cognitive Neuroscience, Philosophy, Quantum Physics and Biophysics of Peace.

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