

Abstracts

Effects of Tones and Phonetics on the Higher Functions of the Brain

Key Words : higher brain function of the brain, tones, phonetics, Aum (mantra), memory

Abstract

Introduction: From ancient time to till today researchers are trying to develop methods for enhancing brain power. They found that the brain generates electrical activity, which can be altered by external stimuli such as light, physical exercises etc.

One of the stimuli introduced was sound. In that 6 Hz pure tone was thought as responsible for activation of memory and calming effect. On the other hand, now it has become clear that ‘mantras’ ‘Aum’ has been given more importance. It was claimed that along with effects on body it also improves intelligence and brings mental balance.

With this background, investigator got interested in studying the effects of 6 Hz tone and ‘Aum’ of different frequencies on the higher functions of the brain.

Aim: To study effects of tones and phonetics on the higher functions of the brain

Experiments: In the beginning, a trial study was conducted it was tried to see the effects of the phonetic sound ‘Aum’ and a pure-tones-pair (400 Hz- 406 Hz) on the stable EEG power spectrum. It was found that pure-tones pair induction increased the theta wave amplitude of the power spectrum in the temporal region, whereas the phonetic induction changed alpha wave in the frontal and occipital regions.

The temporal region of the brain is associated with the retrieval of memory and alpha waves with calmness. It was found interesting to see these changes and quantify them through standard psychological tests. To detect these changes with the help of psychological tests, the study was continued further.

This trial study indicated that there should be change in memory and calmness. It became essential to see what kind of psychological tests can be used for assessing these and similar other changes due to the sound waves.

Recent researchers have become successful to some extent in showing anatomical and psychological correlates of certain capacities. For example, memory, linear thinking, reasoning, perception of details are the functions of the left hemisphere. While non-verbal and behavioural information and lateral thinking are associated with the right hemisphere.

Guilford’s SOI Model specifies intellectual abilities as per the kind of information being processed. It enabled to select the tools involving different parts of the brain. So tools were selected in such a way that right and left hemisphere are involved. They were tests of divergent thinking, evaluation thinking, logical and analytical thinking. Mental states facilitating mental concentration and reducing anxiety are congenial for improving intellectual performance. Hence they should be considered along with intellectual abilities. So tests measuring anxiety and concentration were also selected. After selecting the proper tools, a trial study was conducted to see the effects of 6 Hz tone on the memory for

nonsense-syllables and numbers. Improvement on the post-test was found statistically significant. So similar study was conducted on a larger sample (N=71). The sample for main study was comprised of boys (N=37) and girls (N=34) within the age range of 15 to 18 years. To what extent the improvement in memory is due to the 6 Hz tone (Experiment-1) (N=28). To answer this question, in (Experiment- 2) (N=15), 12 Hz tone was superimposed on 400 Hz and in (Experiment- 3), no tone was superimposed on 400 Hz. Results indicated that 6 Hz has its special function and so there is more improvement in Exp-1 than Exp-2.

For investigating the effects of phonetics, a second study consisting of two experiments were conducted. In Exp-1 effects of Aum containing low frequency (Aum-1) and in Exp-2 effect of Aum containing low and high frequencies (Aum-2) were studied. Results indicated that Aum-1 showed increase in the test of evaluation of semantic production, logical and analytical thinking, and concentration and helped to reduce anxiety. Aum-2 increased evaluation of semantic production and evaluation of semantic, behavioural and visual production and helped to reduce anxiety.

Conclusions: Effects of tones and phonetics on the higher functions of the brain were noted. Specific change with higher brain function depends on the structure of sound used.

Researcher : Anita Patil (Ph.D. awarded)

Guide : P. S. Damale

Co-Guide : Usha Khire

Year : 1997

Giftedness as a Potential for Advanced Development

Key words : giftedness, development of giftedness

Abstract

In this study changes in the conceptualization of giftedness have been briefly reviewed. In that turning points from single IQ metrics to multidimensional approach, entry into affective domain and developmental view of giftedness have been specified. Giftedness has been explained as a potential for development. The process of development has been modelled by the researcher in which diverse abilities are at the foundation and their holistic integrated growth is shown in the context of enhanced self-concept and the social context. For explaining stimulation to motivational force other humanistic models as by Maslow's need hierarchy, Kazimierz Dabrowski's emotional moral advanced development, and the path of spiritual development shown by Samartha Ramdas have been referred. For identification and nurture of potential for development a model based on characteristics of living being (sensitivity, response, adaptation, growth, creation, and elimination) in physical, intellectual, social, emotional and spiritual domain of human life has been proposed. Empirical descriptions of these characteristics are given for illustration. It is shown that giftedness is a process of development through life span manifesting these characteristics at the higher level.

Investigator : Usha Khire

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