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Features of the localization of intra- and interhemispheric coherent relationships in persons with different type of lateral organization (TLO) and the level of creativity

In this article describes the analysis of specific spatial-temporal organization of EEG in solving creative problems of different nature surveyed with certain individual characteristics.

Key words: level of creativity, the profile of lateral organization (PLO), intrahemispheric coherent communication, interhemispheric coherent communication, task convergent, divergent task.

The problem of creativity (creativity) in modern psychophysiology holds a central place. In our work focuses on psycho-physiological characteristics of students with different levels of creativity in the learning period. Interest in this problem stems from the fact that the process of teaching students in high school is intended to include students in the social system of social relations and the assimilation of values in society. Active engagement with various interaction of the social reality, as well as specific training in itself promote the formation of university students active life position and consolidate its links with other social groups in modern society. At the age of the student's account for the formation of social maturity, a period of most active development of moral and aesthetic senses, the formation and stabilization of the nature of the acquisition of a full range of social roles of adults: civil, political, professional and labor, etc.

At the present time due to the increased demands on the professional qualities of the modern labor market creativity (the creative person, creative person) comes to the fore (FN Gonobolin, A. Derkach, EN Dmitrieva, A. Markov, LM Mitin, VN Karandashev, V. Kazan, A. Kolpakov, etc). Based on the above-said we studied the specificity of the localization of coherent relationships to solve problems of different types of subjects with different levels of creative and TLO.

Objective: to study the psychophysiological and psychological characteristics of subjects with different levels of creativity and the TLO.

The object of the study: were students of 2–5-x SFU courses of 90 patients aged 18–23 years. Of them 43 boys and 47 girls.

Research hypothesis: The nature of the frequency-spatial organization of EEG in creative thought could be due to hemispheric asymmetry and the level of creativity.

During the investigation, we have been using the following method: a technique used to modify objects Guilford Tunick (for the diagnosis of verbal creativity), the test Torrens "Completion of images" (for the diagnosis of non-verbal creativity), the method of determining the type of functional interhemispheric asymmetry, T.A. Bragin and N.N. Dobrokhotova, the method of EEG.



Our study gave the following results: the solution converged verbal tests is not dependent on the frequency band of left TLO and low level of creativity in isolated high cortico-cortical connection between the left frontal and lateral-frontal area of the right hemisphere, left mid-frontal area and right posterior temporal, central left posterior temporal and right (Fp1-F8, F3-T6, C3-T6). In average level of creativity – between the zones of both hemispheres, the left occipital and right frontal, parietal and right mid-frontal left, center right area and right temporal (O2-O1, O1-Fp2, P4-F3, C4-T4); a highly creative communications were localized mainly between the frontal zones of both hemispheres, the left frontal and right lateral-frontal areas of the brain (Fp1-Fp2, Fp1-F8). In subjects with low levels of creativity and mix TLO – between the right frontal and left posterior temporal area, left frontal and lateral-frontal area (Fp2-T5, Fp1-F7), a average level of creativity – between the occipital areas in both hemispheres, the right frontal and lateral-frontal left (O1-O2, Fp2-F7); a highly creative – honey left frontal and anterior temporal right-brain areas (Fp1-T4). For subjects with right TLO and the low level of creativity is characterized by high coherence relations between the right and left frontal areas (Fp1-Fp2); average level of creativity have – between the left frontal and parietal brain areas left (Fp1-P3); a highly creative – between the left occipital and lateral right-frontal brain areas (O1-F8).

In the solution of verbal divergent samples regardless of the frequency range from low levels of creativity and left TLO isolated high cortico-cortical connection between the right frontal and central areas of the brain (O2-C3); average level of creativity – between the mid-frontal parietal area of the left hemisphere (F3-P3); a highly creative communications were localized mainly between the central zones of both hemispheres, the left frontal and right lateral-frontal (C3-C4, Fp1-F8). In low levels of creativity with mix TLO – between the parietal and posterior temporal zones of the right hemisphere (P4-T6), at average level of creativity – between the back of the left frontal, right temporal, mid-frontal and laterally the frontal zones of the right hemisphere (T6-Fp1, F8-F4); a highly creative – between the right frontal and right parietal areas of the brain (Fp2-P4). For subjects with right TLO and the low level of creativity is characterized by high-coherent communication between the posterior temporal and left middle-frontal zones (T5-F3); have average level of creativity -laterally between the front left and right forehead area (F7-Fp2); a highly creative – between left occipital and left lateral-frontal areas of the brain (O1-F7).

In solving the non-verbal tests converged regardless of the frequency range from low levels of creativity in left TLO isolated high cortico-cortical connection between the central and left posterior temporal, right (C3-T6); average level of creativity – between parietalo-temporal area of the left hemisphere (P3-T5, P3-T3); a highly creative communications were localized mainly between the parietal areas of both hemispheres, the right frontal and right lateral-frontal area of the brain (P4-P3, Fp2-F8). In low levels of creativity with mix TLO – between the back of the left temporal and central areas of the brain (T6-C3), a average level of creativity – between the central and right anterior temporal (C4-T4); a highly creative – between the mid-frontal and right posterior tem-



poral (F4-T6). For subjects with right TLO and the low level of creativity is characterized by high coherent connected between the posterior temporal and frontal area of the left hemisphere (T5-Fp1); have average level of creativity – between the central and mid-frontal areas of the left hemisphere (C3-F3); a highly creative – between laterally-frontal and parietal areas of the left hemisphere (F7-P3).

In solving the non-verbal divergent samples regardless of the frequency range from low levels of creativity with left TLO high coherent connected allocated between the left frontal and temporal right areas (Fp1-T4); average level of creativity – between the mid-frontal zones of both hemispheres (F3-P3); a highly creative communications were localized mainly between the left frontal and right parietal zon (Fp1-P4). In low levels of creativity with mix TLO – between the right frontal and temporal anterior area of the left hemisphere (Fp2-T3), in average level of creativity – between the central and anterior temporal areas of the right hemisphere (C4-T4); a highly creative – between the parietal and lateral-frontal areas of the right hemisphere (P4-F8). For subjects with right TLO and the low level of creativity is characterized by high coherent connected links between the right anterior temporal and lateral frontal areas, left occipital and anterior temporal areas of the brain (O1-T3, T4-F8); average level of creativity in-between the posterior temporal and left parietal, right (T5-P4); a highly creative – laterally between the front left and right mid-frontal brain areas (F7-F4).

Thus, our study confirmed the experimental hypothesis that the nature of the frequency-spatial organization of EEG in tvorchekskom thought could be due to hemispheric asymmetry and the level of creativity.

References

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