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3.5. Creative Thinking and Social Factors

The discovered neuroplasticity of the human brain of the adult is based on the properties of a neuron to increase the number and growth of dendrites and axon spines owing to the constant activation of a neuron. If we learn new skills and repeat something, additional protein is produced in the neurons for a greater

number of receptors on the cell to make the synapses (contact between two neurons) stronger and our memory better, and as a result of it, we can do certain actions almost automatically. If neurochains receive a lot of traffic, they grow. If they receive little, they reduce. The amount of traffic depends on our attention. If we are permanently focused on some thoughts accompanied by emotions, neuropatterns and neurochemistry change. When the electric impulse passes to the end of the axon of a neuron, it opens the cascade of chemical reactions. Synapses, as a rule, are both electrical and chemical. The neurochemistry of the brain influences the immune system and endocrine system of the body. If we change our thoughts (thoughts, as a rule, have an emotional background), our neurochemistry will gradually change. Perhaps, everyone has noticed that the thoughts of the previous day come in the morning of the next day, and it is difficult to get rid of them. Neurons demand their usual “food”, i.e. electric impulses and chemical stuff, which they had during the thoughts and emotions of the previous day. Conscious suppression of intrusive thoughts is possible, if we substitute them with other ones at our will; or rewind our thinking process during meditation, or in the creative process, or while learning new things, or due to physical exercises, which force blood to flow to new areas of the brain.

If we achieve automatism in doing something, the brain areas responsible for it do not work as hard as before and receive less blood flow than before. In other words, they receive less food (glucose and oxygen) coming with the blood flow. Oxidation of glucose is the only source of food supply for the nervous tissue.

New difficult tasks demand new areas and new neuropaths of the brain to be engaged, involving the neurons of the brain, which were “sleeping” before. Cognition and a creative process satisfy the demands for nutrition of a greater part of the healthy normal brain. In this case neurons do not stop functioning and do not reduce physically, the whole brain receives feeding coming with blood to the activated areas, they become activated during new physical exercises or creative and cognitive processes. Such feeding helps to preserve a good state of the brain and to protect old people from dementia, which involves the loss of functioning neurons. Thus, studying in the old age is one of the ways to prevent dementia because it preserves the normal functioning of the brain up to the end of life (Galbraith, Subrin, Ross, 2008). Both the muscles need training and the neurons of the brain need training too to keep themselves fit and healthy. The cognitive and creative processes also activate the parts of the brain, which are full of dopaminergic neurons, and which are known as the centres of pleasure. The desire of people to learn something new and know as much as possible is *an intuitive human practice to keep themselves physically fit and happy*.

The neuroscientist Natalia Bekhtereva says that the creative process keeps the brain in good condition and preserves its healthy functioning up to the end of life (Bekhtereva, 2008). New neuropaths start working to solve a creative task involving many “lazy” neurons.

Neuroscientists use creative tasks in art therapy to treat psychological and physiological disorders (Findlay, 2008). Getting into the creative state called

“creative flow”, people are fully engrossed in what they are doing, which helps them to switch to another mode of thinking and treat their own psychological and physiological problems. They enjoy the process of self-expression and feel the fullness of life (Csikszentmihalyi, 1997).

Human creativity transforms the world. The world could be quite different without scientific discoveries, inventions, works of art, and ideas of societal organization. To put it simply, it would be the world of animals.

Creativity is a systemic phenomenon. There is an interaction between a creative person and socio-cultural context. The psychologist Mihaly Csikszentmihalyi points out that we should rather study what kind of socio-cultural surrounding gives the upsurge of national creativity than what a creative person and creativity are (Csikszentmihalyi, 1997). In his opinion, the best atmosphere for the rise of creative initiative is multicultural surrounding and high business activity. The mixture of different ideas and values produces a specific and original way of thinking. Besides, there must be economic prosperity and well developed educational and expert systems (Csikszentmihalyi, 1997). The creative potential must be in demand in the society, highly appreciated by people, and easily implemented.

Foucault asserts that a human always thinks in some mental frameworks existing in the society at a certain period of history. Society and epoch impose the existing concepts of scientific discourse and general ideology on a human, which limit the freedom of his creative thinking (Chomsky, Foucault, 2006). However, Chomsky thinks a bit differently: a human has certain inborn cognitive abilities like learning and speaking the language, and he is limited only by them. A human can use these blocks of abilities and create anything out of them (Chomsky, Foucault, 2006). Foucault and Chomsky consider creativity at different angles and both of them seem to be right. A genius can over jump a century and create something that will change the whole life of people in the world. But the majority of less talented people are restrained by the knowledge given them as scientific dogmas at Universities.

In sum, for the development of creativity, which will lead to national prosperity and enjoyable life there must be a certain socio-economic system, which supports good secondary education with creativity lessons, free higher education for all and well-qualified teaching staff teaching without dogmas and prejudices. It is just what Chilean students demanded from the government in the 2011-2013 Chilean protests.

A very convincing study of the influence of art lessons on schoolchildren was carried out by American researchers. The study shows that art lessons are important for the development of cognitive abilities of children and their creative potential.

The following advantages were discovered: academic (art lessons improve reading, writing, speaking, mathematics), basic (art lessons improve thinking abilities, social skills, and motivation for study), complex (they create positive atmosphere in schools) and besides, they help to acquire certain skills in arts (Ruppert, 2006).

In order to successfully teach children literacy, many new neuropaths must be created in the child's brain (pronunciation of sounds, connecting them with their symbolic representation on the paper, composing words and phrases). The brain must be developed enough for the coordination of different mental activities. The experimenters showed that dance classes helped to prepare children to learn reading and writing. Drama classes helped to understand the text better when it was read to them. It is well known that music lessons and the instrument playing improve mathematical abilities of a child (Vaughn, 2002). Those who learn music especially in senior forms showed twice better results in mathematical tests (Catterall, Chapleau, Iwanaga, 2002).

Art lessons help to increase intellectual potential, to assess yourself in the social group and to understand social relationship. They improve imagination, creativity, perception and give the skills of self-expression. The schoolchildren of senior forms who were taught dances in this experiment showed the improvement in abstract and creative thinking (Minton, 2002). The analytical skill acquired at the art lessons was transferred on other subjects at school (Tishman, MacGillivray, Palmer, 2002). All children acquired social skills of sympathy, solution of conflicts, cooperation, social tolerance when they created something together. In the experiment with the boys of 8-19 who lived at home or in the centres for juvenile offenders, it was discovered that learning to play the guitar and playing for their friends raised their self-assessment and self-respect and they understood that they could get respect in a normal way without violence (Kennedy, 2002). Dances also changed the children of 13-17, both juvenile offenders and other teenagers who felt not demanded in the society. They learnt to be tolerant to others, to be persistent in reaching their goal (Ross, 2002). The atmosphere at school became more positive both among children and teachers: the children learnt to get pleasure in self-realization and creative process, and their teachers began to respect them for their creative achievements. Besides, all the children acquired some skills in arts (Catterall, Waldorf, 2002).

In May 2005, the Harris Poll was organized to find out the attitude of Americans to art education. It was commissioned by "Americans for the Arts". It showed the following:

93% of Americans agree that art education is necessary for well-balanced education of children (2% more than in 2001);

86% are sure that art education encourages and promotes better attitude of a child to school;

83% of Americans consider that art education helps to teach a child to communicate with adults and other children;

79% believe that including art lessons into the school curriculum is the first step on the way of improving the state education today;

79% are ready to participate personally, if necessary (if the number of art lessons is increased, or in order to improve the quality of such art lessons), because the art education of their children is important for them.

However, in spite of the support of the majority of people concerning art education and the convincing results of the research, Ruppert states that art education continues to be considered unimportant at schools in the USA and not financed by the state (Ruppert, 2006).

How can it be? Why are the mental needs of the majority of population ignored by the government in the democratic nation-state?

As a result, governments routinely face the outbursts of violence caused by human mental frustration. They have to use police force to suppress violent riots. Paradoxically, people pay taxes to suppress themselves because they do not understand their own human nature. The human mind and brain NEED the realization of cognitive and creative processes, i.e. these art lessons at school, state-maintained theatres, free higher education financed by the state, etc.

To sum up, human inborn mentality and a created socio-politico-economic system are in conflict, and all observable social clashes only reflect the collision of these two structures.

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