

NEUROSCIENCE AS PART OF THE SOCIAL WORK EDUCATION-MYTH, REALITY AND FUTURE PERSPECTIVES

Abstract: The article presents the trends in the development of the educational process of students in the specialty "Social activities" and the inclusion of the neurosciences as part of their training. A person as a social being is closely connected with his social communication and reflects his influence on the personality through changes at the physiological level. Neurosciences in social work study the effects and mechanisms of this influence on the processes of empathy, neuroplasticity and neurogenesis. The task of neuroscience in social work is to reveal the neural mechanisms of mental processes in individuals in norm and pathology, to compare them and to reveal the neural mechanisms underlying interpersonal communication.

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INTRODUCTION

Modern understanding of how the nervous system functions combines the achievements of many scientific fields. Along with the development of traditional scientific disciplines such as anatomy, nervous system physiology and neurology, which are considered fundamental, biological science disciplines such as neurobiology, neurogenesis, etc., are also developing very rapidly.

This interdisciplinary approach in the study of the nervous system has resulted in the adoption of a new term, i.e. neuroscience, which reflects the complex approach in studying the processes which take place in the human nervous system.

One of the main tasks of neuroscience is related with studying the processes at a neural level and particularly at the level of neural networks which participate in various mental processes. These include attention, memory, thinking and emotions.

Recently, different scientific fields have demonstrated a strong interest in neuroscience and its practical application in connection with the issues studied. This is how interdisciplinary branches of neuroscience such as neurolinguistics, neuroeconomics, neuromarketing, neuropolitics, etc., have emerged.

Therefore, incorporating the knowledge of how the processes in the nervous system are functioning during different states of the human mind, the changes which these processes undergo in different real – life situations, allows the neuroscience to develop as a new interdisciplinary scientific field.

DISCUSSION

Man is a social being able to realize one's full potential only within the framework of the already existing society. Life in a society is based on continuous interaction with the other members.

This is how man goes beyond the restrictions of one's self-sustaining biological existence. The individual-society interaction develops and along with it social issues are generated.

The need to have knowledge about the intimate neurophysiological and neurobiological processes and their effect onto the processes related with social interaction, has resulted in the development of a new branch in neuroscience, i.e. the social neuroscience (neurosociology). This is an interdisciplinary field focusing on how humans as biological systems realize their behavior in the social processes and within the social environment.

While psychology, being a fundamental science, examines, studies and analyzes the external manifestations of the human-environment relationships and interactions, and further it studies the pathology of these relationships, mainly focusing on the treatment and prophylaxis of these disorders, neurosociology with its possibilities reaches a much higher level of research and knowledge. The branches of neuroscience as part of the social work, study the structure of the individual human reactions in a real social situation, at a brain level, the level of neural networks and even at the level of individual neurons.

Just like any other science, neuroscience as part of social work in theory consists of two major neuroscience-related fields. The first field encompasses theoretical studies on neural mechanisms which lie at the basis of the social and cognitive processes. The developments in this field allow laying the foundations of future research allowing deeper penetration into the intimate biopsychological processes occurring in the human body.

Recent achievements in the instrumental methods of research, mainly in the area of medicine, but also in the area of psychophysiology, allow the rapid development of the second major neuroscience-related field incorporated into social work, i.e. the practical and applied field.

The achievements of neuroimaging techniques, brain scanning of the participants taking part in the experimental studies, verification of the physiological processes occurring in the brain and the nervous system as a whole, allow an accurate study of the neural mechanisms related with the social and cognitive processes. On the other hand, understanding their mechanisms, knowing their topical localization in the brain, creates an advantage in studying their disorders and hence, their prophylaxis and prevention.

Social work is a specific form of psycho-prophylactic help provided to people in a crisis situation or experiencing difficulties in adapting themselves to the changing social conditions. Some of these people suffer from psychophysical disorders, other suffer from different types of sensory deprivation, some of them are people with reduced intellectual abilities, or these are simply people who, at a particular stage of their life, have encountered the challenges of one or another difficult life situation. Person's physiological characteristics are strictly individual. Development of human mind is a process which is highly specific, regardless of the fact that development of human mind obeys the same rules under both normal and pathological conditions. These specifics result in the appearance of behavioral responses representative for the group, but also individual behavioral patterns related with the personality placed in a particular social situation.

Knowing the neural mechanisms of these cognitive behavioral responses contributes to understanding human behaviour in society, understanding the neural mechanisms associated with human attitude and environment in general, and understanding the different behavioral responses when the individual is placed under extreme crisis conditions.

Accumulating knowledge about the mechanisms of these responses contributes to understanding the principal neurobiological response occurring at a subconscious level and which triggers one or another type of human behavior. This response, as a rule, does not depend on the individual's behavior itself. However, this response may be triggered by the behavior of the other people involved in the relevant social situation.

The human brain is an amazing organ which in its anatomical integrity participates in all mental processes thanks to its functional lobes. It also possesses a unique property called neuroplasticity. This is the brain's ability to change its functional state depending on the social conditions and the environmental requirements. This important characteristic of the brain is closely related with the adequate and conscious control over human behavior, even in the presence of changing conditions of

the external environmental or damage to the brain itself. Knowledge about these specific characteristics of the brain from a purely practical aspect, is of significant importance in the process of the individual and group social work.

Modern theoretical foundations of neuroscience integrated into social work include two main types of knowledge: firstly, this is the Brain Plasticity Theory and the Neurogenesis Theory. Here, included also is the Neurogenesis of Mental Processes Theory, the Human Memory and Memorization Theory.

Neurogenesis allows recovery of some of the lost neurons in the brain tissue. Modern studies in the field of neuroscience reveal that the brain tissue has the ability to regenerate itself to some extent. This partial regeneration allows further development of the neurogenesis-related psychogenesis processes. These two processes have their logical explanation and objective existence which is in close connection with the environmental impact. Here, once again, our knowledge in neuroscience plays a significant part especially when it comes to how social processes influence the development of our knowledge in human neurogenesis and psychogenesis. This interdependence gives a push to the modern understanding of the social processes and the individual's place and role in them.

Neuroplasticity can be studied along with neurogenesis. Neuroplasticity is the ability of the brain tissue to "transmit" some of its functions from one place to another, i.e. from the damaged brain area to the physiologically inactive brain area. In this case, neurosociology is able to reveal the mechanisms of such compensatory transmission of the brain functions, as well as the biological and social factors having an effect on this process.

From the point of view of cognitive psychology and neuropsychology, memory is seen as the ability of the brain to obtain, process, store, and recall information received by one or more of the brain sensory entry points.

Talking about neurosociology, memorizing, respectively memory, should be seen as a process related to the perception, preservation and completion of the neural networks and pathways associated with human behavior in society. This process is also intrinsic to the processes of neurogenesis and psychogenesis, respectively neuroplasticity.

The second type of theoretical knowledge of significance for neuroscience and incorporated into social work includes the theoretical considerations of the Theory of Mind, the practical applied discoveries related to the mirror neurons in the human brain, and the Theory of Empathy.

In the process of communication, in the human mind the impact of social environment is reflected. The discovery of the mirror neurons contributes significantly to the understanding of a large number of mental processes. These neurons are the anatomical substrate where reflected is the other person's brain function in the process of communication or a particular social situation. The proper functioning of the mirror neurons systems in the human brain determines the innate empathy in humans. Empathy, by definition, is the ability to share and understand other people's emotions, thoughts and feelings.

With regard to the training programme of the social work students of great importance is the knowledge related to the neural mechanisms of all three types of empathy (cognitive, emotional and intellectual empathy) and also their formation in the teaching process. In this respect, the inclusion of trainings to develop these skills and their practical application outreach is very essential.

Cognitive empathy is the ability to see and perceive the world through the eyes of others. This type of empathy facilitates the process of communication with others to the largest extent. It also helps us understand the other person's point of view and his/her attitude towards what is happening. Studies on this type of empathy, as well as on the neural mechanisms associated with its formation, have a direct connection with one of the most recent theoretical developments dedicated to the human brain function (The Theory of Mind/ToM).

Formation of the second type of empathy, i.e. the emotional empathy, is directly linked to the proper functioning of the neural networks located in the deeper lobes of the brain. Knowing the neural mechanisms of this type of empathy allows a more accurate reading of other people's emotional expressions as well as the proper management of the emotional element of our own behavior in society.

Of course, here also, the knowledge about mirror neural networks involved in the processes of emotional empathy, is of great importance.

The third type of empathy, i.e. the intellectual empathy, develops in the human mind. Likewise cognitive empathy, the intellectual empathy also is strongly linked to the Theory of Mind or human consciousness.

Perhaps consciousness is man's only capability which does not rest on its own biological basis. However, consciousness is a mental activity which purposefully reflects the outside world in human mind. This means that practically, all divisions of the nervous system take part in this purposeful mental activity with one or another form of activity.

Consciousness as a mental process is in an obvious relationship with the Theory of Theory of Mind. The Theory of Thinking (Mind) is the ability of the individual to understand what the other person is thinking about, what one's intentions are, i.e. this is the ability of creating one's personal point of view.

Thinking about consciousness, the Theory of Mind and human brain thinking, the question about what the neural mechanisms of thinking in each person are naturally comes out. Moreover, man as a thinking being stands out with critical and analytical thinking. It is then logical to ask how is the direct connection realized between thinking, emotions and empathy in individuals sharing a particular common environment? And the more important question is whether these cognitive - emotional processes have parameters which can be measured, compared, and respectively used as an evidence for the existence of such a relationship. Recognizing and considering of this relationship has its place and significant role in social work in the Client-Social Worker interaction.

When it comes to explaining these phenomena, the knowledge about the branches of neuroscience, i.e. neurophysiology, psychophysiology, biophysics or even human biochemistry, is very useful.

The theoretical, experimental, and practical - applied science of the 21st century has developed to a degree which allows the verification of such processes in the individual, but also allows establishment of the logical connections between mental processes occurring between two or more individuals placed in a common social situation. The verification methods themselves are accessible and therefore applicable as a form of visual aid to help students in their learning process. This implies their active use, especially when studying the mental processes, e.g. in the Social Worker-Client interaction, as we have already mentioned above.

The complexity, however, of such an interaction requires knowledge not only at the level of mental processes expression but also knowledge about the fundamental neural processes which lie at the basis of empathy, emotions, thinking, behavior and even speech.

The neural individual mechanisms of these processes are relatively well studied. However, the mechanisms of interpersonal transmission of processes are still in the stage of theoretical and experimental studies. This outlines a new niche with regard to the application of neuroscience in social work, i.e. differentiating the mechanisms of such a type of interaction and teaching the future social workers how to properly apply them in practice. In other words, it means teaching the students how to manage the proper occurring of their own psychic and psychophysiological processes, how to influence the course of these processes also in people who require this special kind of psychosocial help. This is of extreme importance for the processes related to controlling various crisis situations, intervention and their outcome.

CONCLUSION

Applying the knowledge from the field of neurosociology in the practical training of the social work students, would be very precious in providing psychosocial help and support to people from the disadvantaged groups, people suffering from psychophysical or intellectual disabilities.

The mental processes in these groups of people occur under the influence of various pathogenic factors and therefore feature their own specifics. This in turn, requires not only knowledge about them, but also knowledge about their proper interaction and therefore requires a change in the attitude and management of mental processes on side of the specialists working with these contingent persons.

The task of neuroscience involved in social work is to reveal the neural mechanisms of the mental processes under physiological and pathological conditions, to compare them and reveal the neural mechanisms at the basis of interpersonal communication.

Inclusion of neuroscience in the training program of the social work students is a significant progress in broadening the scope of knowledge required for their future career. This on the other side is a factor for providing a timely, effective and adequate help to the people in need.

References:

1. Neuroscience for Social Work. Current Research and Practice, Holly C. Matto, Jessica Strolin-Goltzman, Michelle S. Ballan, Springer Publishing Company, 2014
2. Neuroscience and Social Science. The missing link, Agustin Ibanez, Sedeco L, Garcia A. M., <http://www.springer.com/978-3-319-68420-8>
3. Social Work Theory and Application to Practice: The Students' Perspectives, Carolyn Gentle-Genitty, Haiping Chen, Issac Karikari, Crystal Barnett, Journal of Higher Education Theory and Practice vol. 14(1) 2014
4. The Neuroscience of Social Cognition, David M. Amodio, Kyle G. Ratner, New York University, 2015
5. <http://www.neurosciencerus.org/neuroneurosciencesru.html>