Editorial

Brain, Time, Consciousness and Mind Uploading
Mohammad Hassan Heidari¹

¹Department of Biology and Anatomical Sciences, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
Corresponding author email: heidari34@gmail.com

Introduction

Mind uploading is a new topic currently being discussed in the scientific communities. However, apparently due to the fact that the hypothesis has not been introduced properly, elaborately and simply, professionals and those interested in new sciences and technologies have not been impressed by it, so that they may take part in this broad humanistic desire and grand scientific strategy.

Therefore, a little simplification will be made here to help to explain the issue, so that it can be better understood, and scientific partners and young people who crave for innovation may become more interested in it. Let us start responding to one of major terms: Would you like spending a long time (a year? two years? 10 years?, etc), or suddenly receive a series of extensive scientific data as a foreign language, physics, chemistry, biology, geography etc that can be stored in your long-term memory, in a few seconds and up to two minutes by receiving a series of electro-physiological signals? And in other words, to build Rome in a day?

Would you like all incurable diseases that you have been diagnosed with for many years be treated after exposure to certain signals? Would you like that the cancer cells stop their activity and become healthy in a moment by sending some signals to the brain in patients with cancer? What if blind people can see and the deaf can hear, etc? Is it possible that all people around the world become aware of a scientific issue within a single moment so that all can take steps towards success and happiness? Is it possible for everyone in the world to become literate in a very short period of time, and to benefit from the facilities and make best use of them? Is it possible to use mind uploading to remove the barriers between childhood, adolescence, youth, middle age and old age? Is it possible to use scientific knowledge and capabilities to increase vitality and happiness of the society? The question that arises for the reader is whether these are just imaginary, subjective issues and nothing but unattainable dreams, or real and attainable goals?

If the answer is yes, is it possible to mention some of such achievements in the history of humanity? The answer is that these can be quite achievable. Here several examples are mentioned from historical and religious books, for example revelation to great prophets such as Muhammad (PBUH) in Hara cave where (according to the resources) the Holy Quran was revealed to a prophet in a moment who could not to read and write, and is was uploaded in his long-term memory and then the Prophet could recite it verse by verse and chapter by chapter to the people, so that they be led to the right path, to Islamic knowledge and ethics. Another example is the Jesus Christ, who had the power to cure the sick and even to revive the dead. Other stories indicate that Shiite Imams or their loyal followers have cured the incurable patients in a moment. Such cases can be abundantly found in the history of the religions and humanity. Of course, God has given these people the permission to do so, since human is the caliph of God on earth. To demonstrate this, a Hadith Qudsi (Sacred Hadith), i.e. the words of God Himself, states that: "I love my slaves to obtain knowledge up to the point that when they say 'do away', it will be done immediately." Therefore, we conclude that this technology is recommended and allowable . After this introduction, we will simply review the current state of accessing information by brain.

In the current situation, human brain is loaded with information by collaboration of some devices or systems that are biological in nature and are embedded in the body. These systems include: Visual system receives the light waves and images of the objects that are purely physical in nature, converts them into electro-biochemical impulses and the resulting interactions will be transferred into different brain centers, including the optical lobe by means of neurotransmitters. The observed images will be stored in short-term memory, then if needed and repeated to medium-term memory, and then, if necessary, they will be stored in long-term memory, and can be used for protecting human health or achieving certain goals. Auditory, balance, olfactory, somatosensory and gustatory systems will also collect all relevant specialty data by means of their biological receptors. After preparation steps, they will send such data to frontal, occipital, temporal, parietal, limbic and insular lobes of the cortex. After being processed, the data will be sent to short-term, medium-term or long-term memory.
Discussion

What is memory? There are no complete, accurate and fully proven findings and reports available regarding the shaping of memory, storage mechanism and data reuse. However, according to a scientific hypothesis, possibly the memory is formed in certain neurons (called "memory neurons") many of which are found in the hippocampus region of the brain. In fact, we can say that the memory is formed within neurons and it is the product of intracellular biochemical reactions leading to ultrastructure molecular changes within the neurons. These transformed molecules become sources for coding of the received data. For example, an image of a beautiful landscape or an event is converted into different biochemical codes, is arranged in a special way and is placed in the vesicles of the cell. To prove the hypothesis that memory is a biochemical phenomenon, it can be noted that when an accident, a serious risk of injury or exposure to a toxic substance occurs, memory may be lost. It can be said that such strike or intense stimulus has disrupted the biological and biochemical ultrastructure of the molecules comprising memory and the data has been deleted. In the case of low-intensity stimuli, memory loss occurs temporarily, it will be restored again, and molecules will return to their original form. Therefore, it can be concluded that the micro-or macro-molecules of nerve cells establish the different data and manipulation of them can make changes in the information, or can create it. Therefore, the researchers will focus on the cellular ultrastructure of neurons in future, and if it will be possible to invent a device that may penetrate electro-magnetic waves or similar waves into nerve cells, defined ultrastructural changes can be implemented and the neurons can be encrypted, so that memory formation and mind loading can be performed. This can be similar to the Bluetooth technology, where a set of audio and video data is transmitted from a mobile phone to another one. The only difference is that the neurons that may receive Bluetooth signals (via transmitter device with a physical structure) have a biological structure. The proposal to facilitate and promote achievement of this new technology include:

1. Complete and accurate identification of molecules in the neuronal structure of the short-term, medium-term and long-term memories in the brain in human being and organisms with more simple nervous structure such as mollusks;
2. Identifying the mechanism of molecular changes within cells during storage and explaining how to use it;
3. Identifying the different physical systems effective on molecular changes in neurons in the memory area. These measures require developing a strategic plan and formation of research teams.

References

3. K. Harris, Proceedings of the National Academy of Sciences of the USA 96(22), 12213 (1999).