Eksplorium *p*-ISSN 0854-1418
Volume 46 No. 1, 2025: 1706-1710 *e*-ISSN 2503-426X

Brain Activities in Decision Making Process of Voting in Elections

Ahmet Salih Ikiz*
*Muğla Sıtkı Koçman University,
Email: ahmet@mu.edu.tr

Article Received: 28 Feb 2025, Revised: 25 April 2025, Accepted: 02 May 2025

Introduction

From ancient times until today, the main pillar of democratic regimes has been electoral governance. That process based on the citizen's personal choice which changes accordingly. There are many indicators affecting the voting process either in macro and micro levels. So the results of Parliamentary elections and voting process of citizens are simply a biological decision making process of brain activity coordinated by human nature. The functions of brain in voting decision making process plays an important role. How voters reacts to certain phenomena and what impetus they are affected by are the main questions in this stage. The motor system and neural network in the human body dictates the human behavior in all senses. So it is very obvious in the analyses of decision making process one has to ignore concepts such as destiny, horoscope and other metaphysical explanations. In the same token theological explanations on human soul and eternal life on the daily life of mankind are not in the limits of this study.

How Brain Works

Brain has different functions to serve the human body from every aspects of daily life. Different parts of brain controls our motor system besides that the decision making which is the main difference of human from animals coordinated by our brain. Our responses and reactions towards daily circumstances created by different parts of brain activities. More then 100 billion nerve cells (neurons) compose the adult brain, which can be divided into the cerebrum (with two cerebral hemispheres), diencephalon, brain stem (which includes the midbrain, pons, and medulla oblongata), and cerebellum. Cerebrum is the biggest part of brain and coordinates sensory and motor functions. The higher mental functions such as memory and reasoning belongs to that part. The diencephalon processes additional sensory information. The nerve path-ways of the brain stem connect nervous system components and cerebellum coordinates voluntary muscular movements. The brain is basically designed as a central cavity surrounded first by gray matter and then by white matter. The gray matter called cortex and formed by neuron cell bodies, The other one white matter consists of myelinated fiber tracts in spinal cord. White matter covers grey matter. The cerebral hemispheres and cerebellum have gray matter. Male brains are typically larger compared to female brains.

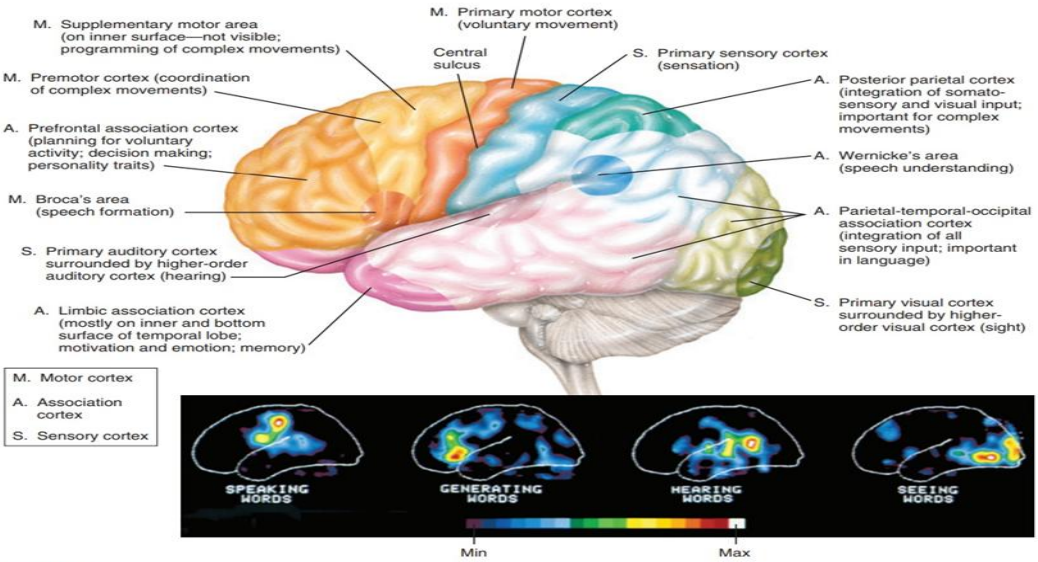

FIGURE 12-5 Functional regions of the cortex.

Lateral orbitofrontal cortex part of the brain compiles different information and allows us to make a choice among them. If we do not use this region, even a simple reason will affect our choice and we cannot compare multiple factors. This region allows us to be more meticulous in our choice. During the decision making process our brain evaluates the learned information via considering possible risks and rewards in return, and follows the best path for a choice. This process occurs mostly in the part of the brain called the prefrontal region. Neurons process and turn previous experiences and information into a database. The prefrontal region processes these and allows us to make decisions. While these experiences are carried, some neurons distribute only negative experiences, while others distribute rewarding ones. In other words, there are many factors in the process of gathering and processing information. In addition, the risks and rewards that will occur as a result of the decision have a great effect on the decision. The regions in the brain called the medial frontal cortex and orbitofrontal cortex play a role in our decision making, changes in our behaviors and decisions in our social lives. The frontal lobes of the human brain play the most important role in decision making. This causes us to make a decision by combining our childhood memories, what we see from our family and what we add in our adolescence. When making a decision, the fastest part we make is what we have accumulated over the years, but if we want to make a more detailed decision, we use the unique areas in the frontal region of the brain to evaluate. Decision making process in brain effected by either by limbic system which is sort of subconscious brain activities or detailed frontal activates from past experiences and environmental observations. The construction of decision making process starts from the childhood, from early experiences from family and observations from them. Then, especially during adolescence, we become more open to other influences and our decisions are shaped a little more by those influences. The brain transforms the data it has collected throughout this process into a decision with the information we have just sent it during the decision-making phase. From the very early childhood through puberty we are loaded many generalizations we make from our experiences or what we hear. Prejudices that we come to, such as certain things being bad, wrong, or faulty, or good, right, or proper, can lead us to make the same decisions over and over again. Making decisions by seeing things that support our beliefs and predictions and ignoring other facts can create serious problems. That forms a reaction on to situations in life and in our case voting decisions in general elections.

Decision Making Process of Voting

Individuals are first affected by their first impressions of candidates visually and audibly during the voting process. This process is related to the short-term emotional interaction section of the brain and is based only on a momentary observation.

Generally speaking first decision step in political preferences is the physical appearance of the other person. If they are handsome and beautiful, the chance of being preferred increases. Understanding the brain mechanisms underlying these first impression effects on voting is one route to a deeper understanding of human political behavior perspective on the broader topic of value-based decision-making. In a collaboration of neuroscientists and political scientists, a new joint study by researchers at the Montreal Neurological Institute and the Centre for the Study of Democratic Citizenship, both at McGill University, has cast some light on the brain mechanisms that support people's voting decisions. Evidence in the study shows that a part of the brain called the lateral orbitofrontal cortex (LOFC) must function properly if voters are to make choices that combine different sources of information about the candidates. The study found that damage to the LOFC leads people to base their vote on simpler information, namely the candidate's good looks. Healthy individuals and those with brain damage affecting other parts of the frontal lobes spontaneously weighed both attractiveness and an assessment of the candidate's competence when making their choices (Kar, 2019).

The neurons in the brain interact rapidly during the decision-making process. This process is instantaneous and very fast, and the interaction of gray and white cells in the brain occurs. The hormonal structure in the body is an important regulator of this interaction. The brain, which can be thought of as a plastic dough, creates a different form of thought set after each event. In the voting process, a long-term cognitive package embedded in the depths of the brain is as important as short-term external variables.

Amygdala is important part of brain and direct participants' voting choices. That part creates stimuli for this process. Thus, the amygdala response might well reflect participants' inclination to vote for candidates whom they found to be more salient or arousing. Indeed, related work examining amygdala response to politicians found that participants expressed a greater amygdala response to the faces of candidates who agreed with their political ideology over the faces of candidates who did not agree with their political ideology.

The best method for making a decision is to evaluate each option. The brain evaluates possible options and makes a choice in order. The criteria we use are our desires, expectations, needs, risks and benefits of the choice. The more criteria we can take into account, the more it is possible to make the most appropriate and most accurate decision. However, not everyone sends this much data to their brain. Instead of evaluating the features of the options and determining their benefits, they try to make a decision by eliminating only the things they find negative and do not want. Although the results of such decisions can sometimes be sufficient, often they may not be appropriate decisions because not all options are evaluated well. That is why new faces in political arena persuade voter's decisions since they do not have any feedback from either from limbic system or prefrontal cortex. Alternate decisions cannot made at this stage.

The rational behavior that economists summarize as "a person weighs his/her options, considering the value and probability of each, determines the one that provides the highest benefit and chooses it" is not valid for human beings under all circumstances. When making decisions, we use our intuition and emotions at least as much as our logic. From the philosopher's perspective that emotions are the enemy of reason and that in order to make the right decision, one must stay away from emotions. Economists, who applied methodology from natural sciences and want to base their theories on a mathematical analyses with rational expectations, approach by an assumption that people always make rational decisions, their preferences would become fixed, and it would be easier to express these preferences with mathematical formulas. Now we see that it has given way to complex theories where psychological factors and the uncertainty in human behavior somehow find a place in the formulas. Now in the academic world, it is emphasized that our feelings and intuitions are indispensable and play a constructive role in making the right decisions.

When we make conscious decisions, we weigh the issue, consider it from all perspectives, and make a list of pros and cons in our minds, sometimes even on paper based formulations. Somehow our subconscious comes into surface in decision making process and unconsciously we make our choices. Our intuition and emotions help us decide what is more important than our subconscious, and what issues we should focus on. So the subconscious part of brain activities cannot be properly solved yet, especially in political voting process. We also have an unfortunate habit that we unconsciously exhibit in decision making process. This habit, which reveals one of our intuitive biases, is to make decisions based on random connections. *" who are asked to keep a large number in mind are then shown a product and asked to guess its price. The subjects say high prices. When the same experiment is repeated with people who initially kept a small number, the price estimates are closer to the small numbers that are kept. Although there is no connection between the number kept in mind and the price of the product, almost all of the subjects They use the number they hold as an anchor. Just as an anchor thrown into the sea prevents a ship from drifting with the waves, the number held prevents people's price estimates from drifting to a different price range."* This phenomenon, which was put forward by psychologist Daniel Kahneman, winner of the 2002 Nobel Prize in Economics, and cognitive scientist Amos N. Tversky, is known in the literature as the

"anchoring effect." (Ünalan, 2012)The anchoring effect has similar reactions during the voting process where individuals are heavily bombarded with distorted mass media actors. As a result voting decision is distorted that ruling government won't be changed and the voters thus has anchored in same pattern. Especially in autocratic democratic regimes in which the voters has concrete idea that ruling government cannot change with elections and that they anchor in same pattern.

The human being is not only a logical thinking being, but also we develop behavior with an emotional thinking structure. The main centre where these functions take place is located in the brain. The distinction between the right and left brain, which is among the important points of the brain, plays an important role in explaining the logical and emotional decision-making processes of the brain. According to research, the left brain is equated with the analytical and logical framework, while the right brain is equated with the intuitive and emotional thinking method. For this reason, the logic and emotion dichotomy is positioned as important decision-makers in explaining behavior. The fact that politicians know that the brain also exists with an emotional design constitutes an important part of political communication strategies. In this way, people become open to the manipulation of their ideological behaviors. Therefore, politicians' awareness of the importance of inducing emotions, such as fear, enthusiasm, anger, pride, sadness, happiness, hope, unity, brotherhood, and respect are extensively used in political campaigns, carried out through both traditional and new media, are actively used to achieve political promotion (Mustafa Akdağ, 2021). The main aim is to create positive political stimuli on inner part of brain of voters.

Another brain activity in the decision-making process of the brain is a process that concerns the memory cortex, such as past knowledge accumulation and ideological infrastructure. During this analysis process, the individual analyzes the cost-benefit analysis that the change of power will create in line with his past and present observations. This activity in the cognitive cortex usually actually allows a decision to be reached a few months before the elections. This does not change unless there is a very unusual situation.

Cultural codes and ideological infrastructures are also factors that affect voter behavior at an individual level. Our brain interacts with the family and close social environment from childhood and adolescence onwards. The mental coding here is quite effective in the voting decision stage. This does not prevent the mind from making decisions that sometimes exceed rationality.

The voting process is not a spontaneous reflex-based process. Because it does not require an instant reaction. Therefore, the frontal lobe of the brain plays a key role here. This section determines the decision in interaction with other sections. In particular, memory and emotion-based data transfer from the limbic system can affect the decision-making process in the frontal lobe with the neurological connections of the synapses. Therefore, political decisions do not change in the short term and very quickly. In order for this change to occur, there must be a traumatic external factor and at the same time, it must be accepted in the brain chemistry. In this case, the subconscious revises its past decisions with a total reactive reaction. In the event of an unpredictable individual or environmental shock, there may be radical changes in voting decisions as a short-term reaction. Rationality is quite limited here.

In general, voters' behavior is shaped by the information bundles formed in the past and their predictions for future. This determines the decisions of individuals by affecting the voting typology within a process analysis. This process is a longer process than the one mentioned in the previous paragraph and is created by political parties and their leaders over time.

Here, the main purpose of politicians is to create perception management with the media and other means of communication and to try to direct this decision-making process to their own political movement. Although not in the form of brain control, this perception is tried to be directed with personal direct communication methods and electronic social media during the decision-making process. This process, in other words, influencing the brain's decision-making process, can be directly related to the level of development in the country and the control of media power.

Conclusion

Our brain is a very complex system for researchers. Even in today's high tech sophisticated medical scientific methods are sometimes insufficient to understand the mysteries of brain activities. Voting process ended up with brain decision making process activities. Each part of the brain from amygdala to limbic system has impacts on decision making process in our life. Voting process of citizens are affected by our memories, external and internal feedback from our daily life, and our social network. The appearance of candidate has immediate response in national elections. In a longer period such as a couple of months the anchoring effect and external traumatic incidents are also serious impacts on brains' data processing and may shift political opinions. Then the voting process is emotional and rational stimuli of brain activities. In today's mass social media applications and artificial intelligence programs may alter brains' decision making process. But our brain is still many unknown parts to be discovered.

References

[1] Kar, A. (2019). *How your brain is telling you to vote*. Neuro: https://www.mcgill.ca/neuro/channels/news/how-your-brain-telling-you-vote-253435 adresinden alındı

[2] Mustafa Akdağ, M. Ö. (2021). Seçmen Kararlarında Duyguların Rolü ve İşlevi: Duygusal İçerikli Reklamlar Üzerine Bir Analiz. *Selçuk İletişim Dergisi*, 895-926.

[3] Nicholas O Rule, J. B. (2009). Voting behavior is reflected in amygdala response across cultures. *Social Cognitive Affective Neuroscience*, 349–355.

[4] Ünalan, Z. (2012). *Nasıl Karar Veriyoruz*. TÜBİTAK: https://services.tubitak.gov.tr/edergi/yazi.pdf;jsessionid=oU1f8MHp5M6VPdv+qGkZrwrv?dergiKodu=4&cilt=45&sayi=758&sayfa=32&yaziid=32683 adresinden alındı