

Lack of Brain Science: A Threat to Our Posterity

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Abstract—As politics becomes more complex, politicians must become more qualified so that they can completely understand the policies they are moving forward. The problem, however, is that many politicians go to school to study political science, and give little attention to other disciplines. The average politician obtains no experience in brain science, other than maybe psychology. Their lack of understanding of brain science will cause, and already has caused, rash decision making that does not support the good of the people. Similar to the case with global warming, the lack of brain science in politics is seen by many politicians as unimportant and they question its relevance. Global warming is currently more prominent and a more common discussion in politics than brain science. While both issues deserve attention, the lack of brain science in politics is of utmost importance, so our posterity will not have to deal with the ramifications.

Index Terms—Brain science, global warming, self gain

WHEN people think of global warming, they have a general understanding of the topic. They understand how it is a problem and why there is as much controversy as there is. However, what comes to mind when someone is asked about Brain Science? Many people do not know what it is, or understand how it can and should be applied. People should understand the human brain because it is the complex organ that controls cognition and behavior. To not understand it is to not understand ourselves, the job politicians are meant to do. With brain science, we can understand ourselves and other people to improve our quality of life. Brain science itself, however, is not an easy topic.

If we attempt to gain an understanding of the brain, we must first understand at least six disciplines. These disciplines include computer science, neuroscience, psychology, biology, electrical engineering and math. Each discipline can only help to explain a part of the brain and how it works. For example, computer science and math help to build an understanding of the computation of the brain. In contrast, neuroscience and biology build an understanding of brain cells and how those cells interact in the human body. Electrical engineering helps give us an understanding of how the brain wires itself and communicates with the rest of the human body. Finally, psychology is the big picture of what our brain does. None of these disciplines individually understand how the brain works, but when all of these parts are brought together, we can better understand the brain. The integration of this cross-disciplinary idea has created some breakthroughs toward a computational model of the brain, as seen in some articles in the Brain-Mind Magazine.

The multidisciplinary standpoint could be compared to a painting. Artists use many different colors of paint and many different brush strokes to make a painting. For our purpose, the different color paints represent the different disciplines, and the each brush stroke represents a subcategory of the

disciplines. Every stroke is different, and every stroke is necessary for the picture. All of these strokes come together to form an image. In this analogy, the image would be the brain. Many disciplines are needed to piece together a full understanding. Juyang Weng used a tale from India to explain this idea in his paper, *How the Brain-Mind Works: A Two-Page Introduction to a Theory* [1]. He compared this to a group of blind men and an elephant. Each blind man can feel and understand a different part of the elephant but none of them are able to individually see the elephant as a whole.

Science is the study of the laws that govern the Universe. It is not debatable unless proven to be wrong by facts and data. Brain Science may be complex and difficult to understand completely, but, regardless how much humans have made progress toward understanding brain science, it is science. The parts we do understand work to explain why people do certain things, just as gravity explains why things fall down to earth. With the rise of Artificial Intelligence and a more complex world, brain science is a necessity for current and future politicians to understand, so that they are able to avoid catastrophic mistakes.

I. INTERNATIONAL RELATIONS

Terrorist attacks on our country and other developed countries are a current issue of concern to our elected officials. Many officials argue over how to defeat them, but no one builds a plan using brain science. This is because brain science can suggest a completely different approach. To understand why others might attack our country, we have to begin to understand their motives. With brain science we are able to understand, and discuss with greater detail, what goes into their decision making and how they come to the conclusion that they need to attack us.

History shows us that the more we get involved in a region that is not our own, the worse off the region becomes. Our perspective and knowledge of the needs of another region does not extend far enough to meet their needs. Rather if we take the time, through brain science, to better understand how the population of that region makes decisions or manages themselves, we can be of better assistance.

Violence does not help change people's beliefs or how they go about doing things. If we believe they are wrong and want them to change, we should try to do so without the use of force. Regions such as Vietnam are still struggling from American forces once occupying them. Poverty is common in recently occupied countries, and these countries are considered to be less advanced. This pattern is seen all throughout history. Countries that recently were colonies, and countries recently

ravaged by war, tend to be the less advanced countries that are struggling with social and economic issues. Brian N. Huang discusses this issue in his paper, *Brain Stories 5: Visit to Cambodia in Contrast with Thailand*. He traveled to Cambodia and saw how the region is still affected by the Vietnam War [2].

War and violence have gone down over the years even though we see more about it in the news. Steven Pinker, a psychologist at Harvard University, shows this to be true and explains how this is possible in his book, *The Better Angels of Our Nature*. He supports his claim with brain science. Pinker's general claim is that with the rise in knowledge came the decrease in violence [3]. We can use the understanding of the brain to explain these patterns that we see in history and make more educated decisions in the future.

II. EDUCATION

The United States needs a more advanced education system to be able to achieve more than other nations in science and technology. At the moment, we continue to use an old and broken system. It must be changed in order to compete with other nations. To do this, and do it well, policy makers must understand the brain. If they understand the brain they can figure out the best way to structure the education system to allow the U.S to be competitive.

The current education policies could be compared to trying to teach a dog or some other animal a trick by talking to it. They do not usually work as they are intended to. Even if the animal learns the trick, it will usually not be able to use this new trick to its advantage. Unlike training an animal, the school system should not be training students to do tricks but preparing them to solve problems. In other words, the school system should help students to succeed in life and not teach them how to memorize random facts for a test. The school system should focus on the development of student's brains.

Currently, many countries, especially in Europe, begin teaching students new languages at young ages, often in elementary school. In Germany, students have to learn German, English, Latin, and French from a young age. In the United States, this is not the case. Most people in the U.S take a few years of a language in high school but fail to get past a four year old speaking ability.

Someone could argue that there is no need for students in the U.S to learn new languages because most people elsewhere are forced to learn English, but this is hurting our education. Education's purpose is to develop the brain, and learning a new language has proven to aid in this. While students develop their skills in a new language, they also develop their communication skills in their own language. Learning new languages has many other benefits as well. It not only helps the brain develop, but also helps to prevent degenerative diseases like dementia. Teaching foreign languages in school is just one example of how education could benefit from brain science.

The brain is constantly developing and changing. Many different things affect how it develops, and its development should be understood by those people in charge of the development of millions of brains. The children of today are the

future of the world and if we do not help them develop their brains to the best they can be, we have failed for the future of this world. If educational policy makers gain an understanding of the brain and how it develops, the education system could be reformed to become the most successful system ever. If the education system is not reformed to fit the how the brain develops, the United States will continue to fall behind in education, and fail to compete with other nations in the future.

III. CRIME

Another political discussion where brain science should be used is crime. Examples of areas within crime that could be improved with the use of brain science include: drug abuse, the prison environment, and theft and homicide.

Drug abuse is a large issue in many countries. It is destructive. Drugs have the ability to ruin lives and are therefore an important topic of concern. Politicians can use brain science to understand what causes people to buy and sell drugs. They can then cut the issue at its root: the human brain.

Aided with brain science, better policies can not only, stop drug abuse at its root, but also help create better programs to rehabilitate people to a life without drugs. There is a plethora of drug addiction research that has been done, and even more on related topics. An understanding of how dopamine works is very useful when talking about drug abuse.

It is important to understand motivation on a chemical level, dopamine, as well as a psychological level. This is an example of how it is necessary to use many different disciplines to understand how the brain works. Without an understanding of dopamine, someone can not see what is behind the bigger decisions we understand through psychology. Every discipline is intertwined and aids others. When these disciplines work together we can see and understand the bigger picture: the brain.

Just as rehabilitation programs should aim to help people live a happy and drug free life, prisons should help people rehabilitate into society. Many people serve short sentences and are unable to adapt back into society. Without the ability to become a well functioning member of society, many go back to prison soon after to serve another sentence. The environment in prison should focus on giving people the skills necessary to return to society so that they do not have to return but can move forward with a better life.

Everyone has been taught not to steal since a very young age, yet people still do it. Why do some people feel the need to steal? The answer lies in brain science. People have certain needs that must be taken care of. If they are not taken care of, a person could suffer mentally and resort to something such as taking from others. In worse scenarios it could lead to the person harming themselves or others. Suicide and depression are issues that revolve around mental illness because they are, after all, mental illnesses. They can be stopped, but it takes an understanding of the brain to do so. Another problem along the lines of suicide is homicide. Why does it occur? In most scenarios people lack their basic needs.

IV. NEXT STEPS

Brain science is not as popular a discussion as global warming, but should be considered as serious a topic as global warming. Global warming is seen by many as a threat to our future, and the lack of Brain Science should be seen as an equal threat, if not more of one. I am not saying that the use of brain science in politics is an instant fix to all of our problems but it is an important first step to resolving some issues of current concern. Politicians must learn brain science so that they can make more effective policies.

Law makers understanding the brain not only helps the people, but also politicians themselves. Politicians can gain from understanding the brain. If they know how the brain works, they can use what they know to acquire more supporters and become more influential. This ability would put them far ahead of their competitors. If politicians are unwilling to learn about the brain for the reasons of making better policies, they should at least be willing for their own self gain.

Self gain is a major reason for the discussion and controversy with global warming. Big oil companies do not want global warming to be acknowledged because it would cause them a loss in profit. They will go as far as they can to stop politicians from helping push forward legislature to stop global warming. Though the science is there, global warming is still strongly argued over.

The global warming debate started when scientists found that the earth was heating, used media to inform people, and wrote to politicians to influence government policy and create discussion. They were successful at popularizing their findings and quickly everyone knew what global warming was. Many people may still argue that global warming does not exist, but the discussion is still a popular one. The use of brain science in politics will not happen immediately either but it is important to start a conversation.

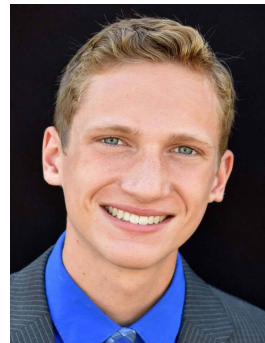
The same should be done with brain science. If the idea of using brain science in politics is popularized, it could change

the discussions and thoughts of world leaders. For the United States, the use of brain science in politics will help "secure the blessings of liberty to ourselves and our posterity." Brain science is a promising idea that should be popularized just as global warming was because the lack of brain science, like global warming, is a threat to our future.

The idea of using brain science in the creation of policies is a novel and exciting idea. The first step to making the shift in thinking, is to popularize the idea, just as scientists did with global warming. The more people talking about brain science and using brain science in political discussions, the more it will be noticed and used. It is an important idea, and must be used for politics in the future. The use of brain science could cause great strides in many areas, while the lack of it could mean disaster. Brain science, like global warming, is a threat to our future, and should be a serious topic of discussion as the world becomes a more complex place.

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