

Some Possible Legal and Social Implications of Advances in Neuroscience

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Introduction

- Henry T. Greely was a Professor of Law at Stanford University Law School.
 - He discusses the effects neuroscience can have through an ethical point of view, constitutionally, and its appropriateness.
 - Neuroscience is increasing our knowledge of the human brain's functions and malfunctions.
- It is not necessarily being used currently but since there are advancements being made, its application to genetics, health care, law, schooling, business, and parenting are discussed in the essay.

Prediction

- Neuroscience may be used to make predictions about someone's future.
 - But what does this really predict?
 - Behaviors, health, actions, abilities, etc.
- Analogy to Genetic Predictions
 - Associations between genetic variations and different diseases have been claimed, but often end up being inconsistent.
 - Can you see how this can apply to neuroscience?

Predictions Ctd.

- When used in health care, neuroscience may have the possibility to predict future complications or diseases.
 - Neuroimaging may lead to predictions of someone's future health, but problems come along with this.
 - Tests may be inaccurate
 - May present information that is difficult to evaluate
 - May provide information that is unreliable or harmful
 - The technology isn't necessarily available today.
 - How ethical is it to experiment on humans' brains to make further advancements in neuroscience?

- It is thought that neuroscience can provide other methods of testing ability or aptitude, which could take the place of tests like the ACT or SAT in schools.
 - Would you prefer to have your ability and aptitude determined through a brain scan or through your own effort in an exam?
 - Should colleges really judge you based on neuroscience? Is it a better determinant of who you truly are as a person?
- In the business world, neuroscience can be put to use by testing potential employers future likelihood of developing a mental disorder, providing reason for employers to avoid that person.
 - There are some laws that restrict testing of this nature to protect the rights of a human.
 - If you were applying for a job would you feel comfortable going into an interview where a neuroscience test could be performed?
 - On the flip side, if you were a boss whose main goal is efficiency of employees, would you take advantage of this technology?

- When applied to parenting, neuroscience can be used to test a fetus or a child to predict future health and/or behaviors and abilities.
 - The controversy with this is that the parents may try to hard to control the child's future based on the results of a brain scan.
 - Is it possible for the government to regulate parents' actions towards their kids?

Neuroscience Applied to Law

- Neuroscience can be used to make predictions about a person's future behavior, in this case dangerousness or inability to control their criminal tendencies.
 - This can help sentencing in courts.
 - How accurate do the tests have to be in order for them to determine a defendant's outcome in a case?
 - It is also hard to test the accuracy of the predictions based on the brain scans because a controlled experiment, in this case, is impossible because of its dangerousness.

Litigation Uses

- Neuroscience in a way can be seen as an improvement on the common polygraph, which has ways to be beaten.
 - Ex: *United States v. Scheffer*
 - A brain-imaging device might be able to detect patterns or locations of brain activity that can determine falsehood.
 - There is another option which would be administering a stimuli that would compel someone to only tell the truth.
 - If it is known that these tests are 100% accurate, how should it be handled if a person rejects the administration of the test? Is it constitutionally right to force someone to take a test that they do not want to take?
 - Ex: 5th Amendment (protects witnesses from being forced to incriminate themselves)

Constitutional Controversies

- The First Amendment says that one has the freedom of speech, or decision not to speak.
- The Fourth Amendment claims that such neurological tests can be considered an unreasonable search and seizure of a human's mind.
 - In contrast to this, the USA PATRIOT Act gives the government the ability to search and seize any threat the the United States.
 - Neuroscience can now add “mental searches” to the USA PATRIOT Act, searching and seizing the minds of considerable threats.
 - Do you think this is constitutional? What if someone has threatening thoughts but was never planning on acting upon them?

- Neuroscience may be used in voir dire, the selection of jurors.
 - It can tell if the prospective jurors are being honest about whether they know anyone involved in the case or have any particular biases.
- Truth testing could save time and money by causing people to settle out of court, but who would perform these truth tests and regulate the outcome? Should a court case be settled on these tests?
- Accuracy
 - Even if the tests are 99% accurate, there is still a chance of a false positive (identification of a false statement as true) or a false negative (the identification of a true statement as false).
 - Would you trust this test?
 - Should it be used as extra supporting evidence, or the determinant of a trial?

- Neuroscience may also provide courts with 3 relevant tools concerning memory.
 - 1. An intervention to improve a witnesses ability to remember events.
 - 2. The power to assess the validity of a witness's memory.
 - 3. Localizing the site of a memory through neuroimaging allowing the witness to *relive* a memory before trial so that it is fresh in their mind.
- This falls back to the constitution, the witnesses have the right to refuse a test of this sort.
- If a person refused the test, would their memory be considered less valid in court?

Medical Cases

- Parents who say their child's brain damage is due to lack of oxygen at birth and bring the doctor to court, can have the child's brain tested through neuroscience, determining the cause of the brain damage.
- In personal injury cases, many people exaggerate the extent of their pain. Neuroscience can provide a strong test for whether a person actually perceives pain.
- Neuroscience may be able to determine evidence of mental retardation. It could also force the courts to recognize that "mental retardation" is not a discrete condition.

Comments or Questions?