

NANO - Role Play

Improving Human Brain Capabilities

Could eyes be given extra artificial vision that would allow you to see in infrared, ultraviolet and X-ray? Could ears have a makeover by adding devices which could hear in a wider range of frequencies?

Although these examples are just fantasy at the moment a real example would be a new implant that neurosurgeons can use to treat patients with severe Parkinson's disease – a disorder of the central nervous system that often impairs the sufferer's motor skills, speech and other functions. It has been found that the uncontrollable tremor of patients can be removed if a nano-size electrode is inserted into the brain that delivers a continuous electrical stimulus to the brain. This precise electrical stimulus has the effect of removing the tremors. However this device could be used to treat other medical and health conditions such as intractable epilepsy, as well as mood and eating disorders. Could this nanotechnology be used to increase the capability of the brain in areas for which it was not originally developed? An example of this might be students enhancing their concentration during exams.



Ref:
<http://www.springerlink.com/content/k406717nr5119443/fulltext.pdf>

The Dilemma is:

Is it ethically acceptable to use technologies developed for specific medical treatments for other purposes like improving human capabilities?

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Stakeholder: The Scientist

- Read the text on your card and share your opinion with the group

You represent the community of scientists and researchers in the nano-science and nanotechnology field.

Your primary motivations are:

- To seek knowledge and understanding of the human brain.
- To improve the conditions we live in.
- To design methods for restoring brain capabilities altered due to medical conditions.

People often fear the unknown and wish to resist change. The very premise of science is to always push the known boundaries. Without this drive there would never be any improvement of the conditions we live in or the technology we have at our disposal. It is not right to try and put a limit on what science can achieve. It is not science that should be monitored but the ethics of the people who go on to use it. Social values and moral principles are not the realm of science.

- **Share your opinion with the group**

I think.....

- Note: you may come up with additional ideas, don't feel limited by the information above.

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Stakeholder: Potential Patient

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You represent patients seeking medical care.

Your primary motivations are:

- Make sure that patients get the medical care they need.
- Ensure that patients have a say in what kinds of care they get.

Any help I can get to live a longer, healthier life I'm going to take, why shouldn't I? My friend's father had Parkinson's disease and I watched his condition deteriorate. If there are devices that could help him function better, he would suffer less. He is entitled to be able to live his life as "normally" as possible.

- **Share your opinion with the group**

I think.....

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Stakeholder: Ethicist

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You represent an ethical group seeking social justice and equity.

Your primary motivations are:

- Make sure that no one is lacking for their basic needs.
- Priority must be given to global distribution of the products and services created by nanotechnologies.
- Providing a critical normative analysis of the moral issues at stake in that sector of human activities.

Ethics refers to the social norms and values that guide both individuals and their interaction with their fellow human beings and communities, and with their environment. There should be limits to manipulations in the brain, as we should respect the natural abilities of humanity.

- **Share your opinion with the group**

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Stakeholder: Finance Minister in a country in the developing world

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You represent your government, which makes decisions as to which drugs will be licensed and how they will be available.

Your primary motivations are:

- Protect the citizens from harm.
- Provide equal health care for all citizens.
- Keep cost of public health care as low as possible.

This treatment will be expensive and my government cannot afford to allocate so much money to this treatment. Why invest in such developments that could help only a few people whereas we could invest in developments supporting more people.

- **Share your opinion with the group**

I think.....

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Stakeholder: Private Medical Centre

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You represent a Private Medical Centre that provides treatment for Parkinson's disease and is seeking also to use it for other purposes .

Your primary motivations are:

- To meet demand for brain improvement / enhancement .
- To generate profit for your Medical Centre.

We try to meet the demand that people express. That is our remit. However, any advances made in medicine are often initially very expensive due to research costs but then eventually become more widely available as production costs become cheaper. If there is a demand for body enhancement or even a treatment originally created for one disease but which then has uses in another area, we will try to meet it. It is our business. Body enhancement has been around for decades, think of plastic surgery, this has now become common place. It is obvious that developments will happen in this area as they have in others.

- **Share your opinion with the group**

I think.....

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Stakeholder: Child (You)

What is your opinion?