Human enhancements
Redefining what it means to be human

Character Education for a Challenging Century
Geneva
22 October 2014
Introduction
Education is concerned with developing the person
Character education is centred in the human

Character resides in individual humans
Character education fosters particularly human traits: courage, mindfulness, ethics
So a firm notion of what it means to be human is a vital foundation for character education.
But what it means to be human is changing
New technologies can augment our existing cognitive and physical capacities in novel ways
Traditional limits to perception and performance may no longer hold
What does that mean for our idea of what it is to be human?
What does it mean for character education?
Long history of augmenting human capacities with technology
Equally long history of developing prosthetics to compensate for reduced function
Enhancing human capabilities is a well-established human endeavour

(perhaps a defining characteristic).
It hasn’t stopped us developing moral codes or striving to be more courageous.
So the changes described here don’t mean the end of character
But they do change how it will be demanded of people
and that needs a response from you.
Cosmetic pharmacology
Prosthetics
Genetic enhancement
Networked minds
Cosmetic pharmacology
Use of drugs by people without disease to enhance cognitive and physiological performance
‘smart drugs’
‘nootropics’
Nootropil®

solución

20%

(Piracetam)

Via oral

solución

100 ml

UCB
BUY LAB-TESTED NOOTROPSICS

Welcome to our store. We carry some of the most popular nootropics on the market. You can trust us as your number one and only nootropics supplier. All of our smart drugs are synthesized and double checked for purity at our independent testing facility. Good Manufacturing Practice (GMP) is also followed during the manufacturing of our products.

Most of our nootropics are not approved by the United States FDA for use on humans and therefore we strictly adhere to these guidelines. We do however offer top quality and lab tested purity that would standardize for pharmaceutical grade (>99% purity). Please see below for all the types of nootropics we carry.

OUR PRODUCTS

- **Subbutelamine**: $31.99–$59.99
- **Phenylpiracetam**: $69.99–$119.99
- **Citicoline**: $39.99–$75.99
- **Centrophenoxine**: $19.99–$37.99
- **Alpha GPC**: $50.99
- **Acetyl L-Carnitine**: $12.99–$24.99
- **Noopept**: $32.99–$109.99
- **Adrafinil**
Ritalin
Modafinil (Provigil)
Adderall
Beta-blockers
Nutraceuticals
Improving alertness and mental function
Improving affect and mood
Used by professionals and students
1 in 5 Nature readers used drugs for focus and concentration (Nature survey, 2008)
Around a quarter of UK students at Oxford, Newcastle & Leeds have used Modafinil (*The Tab*, 2014)
Culture of medication
Global access to cheap pharmaceuticals online
History of presenting enhancements as treatments

Fen-Phen

Estrogen replacement
Demands of a knowledge economy

Intellectual labour

Emotional labour
Demonstration of character might be made possible through taking a drug
Or the capacity for demonstrating character might be enabled through pharmacological intervention
If students use these drugs, are they cheating?
If using smart drugs becomes common practice, will all students have equal access?
What sort of pressure will students face from schools or parents?
How can the dangers of unregulated pharmaceuticals be made clearer?
If doctors and firefighters can function better, shouldn’t they?
Genetic enhancement
Paralysed man walks again after cell transplant

By Fergus Walsh
Medical correspondent

A paralysed man has been able to walk again after a pioneering therapy that involved transplanting cells from his nasal cavity into his spinal cord.

Darek Fidyka, who was paralysed from the chest down in a knife attack in 2010, can now walk using a frame.

The treatment, a world first, was carried out by surgeons in Poland in collaboration with scientists in London.

Details of the research are published in the journal Cell Transplantation.
Inserting genes into cells
Mitigating ageing damage, improving physical stamina, reducing risk of disease
Interaction between genetic and environmental factors is complex
Stem cell treatment for macular degeneration

Injecting human embryonic stem cells behind retina

Improved visual acuity
Preventing loss of muscle mass

Mechano-growth factor and IGF-I gene

Potential sports doping
Treatments for Type-1 diabetes in development
Growing insulin-producing β cells
Teams at Harvard, ViaCyte
Different forms of 5-HTTPLR associated with happiness, moral choices

“carriers of the short (S) allele showed particular reluctance to endorse utilitarian actions resulting in foreseen harm to an innocent individual.” Marsh et al. (2011)
More effective than simply managing long-term health issues
Technological barriers falling
Ageing populations mean new markets for biotech firms
Risk of profiling and discrimination by insurers and employers
Potential for sports doping, improving stamina and endurance.
Can you just ‘turn on’ loyalty or courage? Should you?
Shouldn’t we try to improve life? Don’t we do that already?
Prosthetics
Making good the loss of body function
i-limb

Individually articulated fingers with variable force library of gestures managed via smartphone app
Nerve-controlled robot leg

Connecting with the central nervous system to co-ordinate movements
Augmenting existing capabilities
Exoskeletons

Giving shipyard workers the capacity to lift large weights
Google Glass
Moving from a deficit model to a sense of enlarging human capabilities
Frontiers: biohacking, performance art

Stelarc

Orlan
Perhaps today we need character to live with a prosthetic
Perhaps tomorrow we’ll need character to live without them
Networked minds
Idea of ‘network’ established in sociology

Castells’ ‘network society’

Latour/Callon/Law ‘actor-network theory’
But ‘network’ more than a metaphor now
The web and internet have made us all nodes in a real network.
(Most of us still use keyboards or glass screens to join in)
Using patterns of brain activity to directly control computers
Reading electroencephalograms and sending signals to software or hardware.
Implants can affect more than motor function.
“The pain, fear, anxiety and depression are pretty much completely gone”
Unpredictable effects in neurotypical or ‘healthy’ people
Commercial brain-computer interfaces also available

NeuroSky

Emotiv
From minds in networks to minds of networks
Algorithmic machine intelligence

Amazon recommendations

Contextual advertising
‘Strong AI’ won’t be like the movies
But some version of it might care for you when you’re older
A reduced impact of load by intelligently distributing weight on the body.

Low power requirement means little additional weight for batteries.

Low suit profile to fit under the existing uniform comfortably.

Integrated components to provide joint support where the Soldier needs it most.

Provide sensor cues to Soldier to reduce injuries.

Reapply energy to enhance the efficiency of motion and improve overall metabolics.

Remain compliant and flexible, stiffening only when needed.

Artist's Concept
How can we develop new norms for online behaviour?
What new forms of agency are there?
How do networked prosthetics change our idea of the body?
How do we recognise machines as moral actors?
Implications
Tempting to ask, “what demands are made of character when everyone has superpowers?”
Our culture has some suggestions
‘use my powers for good, not evil’
SUPERMAN
CHAMPION OF THE OPPRESSED,
THE PHYSICAL MARVEL WHO HAD SWORN TO DEVOTE HIS EXISTENCE TO HELPING THOSE IN NEED!
‘with great power comes great responsibility’
But we won’t be a society of superheroes
Different augmentations will be chosen by (or imposed on) different people for different reasons
The effect of widespread technological augmentation will be to increase diversity.
People will have a greater range of capabilities
There will be greater differences between people’s experience and perception.
So people will need to be:
Sensitive to the differences between them and other people
Aware that they can’t tell what sort of capabilities other people have
Prepared for life with different powers, or none
Potential to give people the moral framework needed to adapt positively to an augmented world
But failure means letting technological capabilities lead the way

“if we can do it, we should do it”
So there’s more need for character education than ever before
And more need to be clear what we mean by ‘character’
Thank you

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