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Neuroethics in Neuroscience Series: Cognitive Enhancement Drugs and Social Justice

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Introduction

"Smart drugs" offer the possibility of cognitive enhancement of human beings, promising or threatening to drastically change the lives of citizens. Lack of adequate regulation could lead to widespread violation of rights and justice, as direct and indirect coercion may result from utility calculations of private and corporate actors. The pressure to enhance would be acute in the military and education, but probably the most far reaching influence would come from the sphere of business.

As an illustration of the claim that the changes could be drastic and not limited to isolated areas of society, consider the example of logistics companies in a more or less laissez-faire market economy. Let´s say that the most profitable trucking route is 1250 km long. The run could be achieved in one day, but the stress and fatigue are too much to handle, so without enhancement drugs, companies offer the service of transportation with the duration of 2 days, and the accommodation for the truck-driver is included in the price. That would make the return trip last 4 days. Let´s say that company A decides to assume an employment policy that is preferable to truck-drivers that have no problem in using Modafinil (the medical treatment for narcolepsy) to stay alert and make the run in just one day. The company offers the service for the same price, thus gaining extra profit, but for half the duration. Company B, the chief competitor of Company A, responds by offering the "overnight express" service and accordingly gives current employees the following choice: either they will start using Modafinil in order to cope with the requirements of the job, or they will be laid off.

The effects on the market are not hard to foresee. Other companies would either adopt similar policies, or go out of business. The truck-drivers would either use Modafinil (or some other drug) or be out of work. Their choice is dictated by market forces completely beyond their control. Thus, enhancement technologies could have profound influence

on the everyday lives of most citizens, as the working day and deadline expectations will change according to the social pressure.

Cognition Enhancement Drugs

Having a brief sketch of possible problems helps clarify why the issue of enhancement in general and cognition enhancement drugs (CED) in particular need to be regulated adequately. CED are easy to produce, administer and smuggle. Therefore, the use of medical drugs that are used as treatment for ADHD and narcolepsy by healthy adults needs to be regulated [1]. Currently available drugs, such as Ritalin® (Methylphenidate), Provigil® (Modafinil) and the more controversial Adderall® (Amphetamine) can undoubtedly provide "Performance Maintenance", while "Performance Enhancement" along with the safety issues still remains disputed. Performance enhancement means that healthy adults could use these drugs to achieve significantly better results, while performance maintenance means that normal levels of functioning could be maintained while effects of fatigue and sleep deprivation could be reduced [2].

The example of logistics companies serves to show that non-existent regulation could lead to violation of equal rights of citizens not wishing to enhance. Admittedly, indirect coercion is more often than not associated with the question of autonomy [3], but the threats of society-wide violations of equal rights and discrimination are questions of justice. Unregulated use of CED is unjust because it undermines the equality of rights and liberties of citizens wishing to enhance and those that do not. Furthermore, using CED is cheating as it violates fair equality of opportunity. Moreover, the use of drugs might be justified in instances of poor health but not when seeking positional advantage.

Justice and CED

The common claim of authors opposing enhancement (e.g. [4]) is that treatments are obligatory and permissible while enhancements are not. The application of the principles of justice can explain why this might be the case in CED, once operative definitions of using drugs due to health needs and for cognitive enhancement have been offered.[1] Preventive, curative, rehabilitative and compensatory use of medical drugs is an important part of meeting health needs [5]. On the other hand, cognitive enhancement could be defined as use of medical drug for non-health related improvement of cognition.

Using CED is not an issue of providing basic necessities for those who are lacking, benefiting the least advantaged or restoring citizens to a position of equal opportunity and liberty, while in the case of citizens suffering from ADHD or narcolepsy (using therapy) it is. Furthermore, providing CED collectively to gain positional advantage could cause erosion in the fabric of society, as citizens would see that medical resources are used as enhancements, while clear cases of disease and impairment are left untreated [6]. This means that justice could be used to draw the line between cases in which it is permissible and obligatory to provide drugs and those that it is not. Moreover, as resources are too limited to meet all needs for treatment, justice requires that we meet most important health needs first. Only if all health needs are taken

1 1 The most influential theory of justice is the one offered by John Rawls. Rawls´s principles of justice (in the final formulation) state that: 1. Each person has an the same indefeasible claim to a fully adequate scheme of equal basic rights and liberties, which scheme is compatible with the same scheme of liberties for all; (the equal liberty principle); and 2. Social and economic inequalities are to satisfy two conditions: first, they are to be attached to positions and offices open to all under conditions of fair equality of opportunity (the principle of fair equality of opportunity); and second, they are to be to the greatest benefit of the least advantaged members of society (the difference principle) [7].

care of could any public finance for enhancements be allowed.

The application of justice has so far only excluded the possibility of having a legitimate claim on public funding for enhancement purposes. But what if private companies and citizens interested in enhancement provide funding? Would it not be paternalistic to arbitrarily limit their legitimate interests?

CED are used by individuals as means for obtaining undeserved positional advantage, and the example from introduction serves to show that they could be used to ensure positional advantage of corporate actors as well. If students use Methylphenidate (Ritalin ®) during an exam because they are diagnosed with ADHD they are merely having a fair opportunity to compete with other students on an equal footing. However, if they use it as enhancement, they are taking a chance with the unknown long-term side-effects in order to gain advantage over others. Such practices could lead to a situation in which all students need to use CED to be able to compete. Similarly, all truck-drivers would need to use drugs in order to be able to work. Logistic companies would (indirectly) coerce truck-drivers in order to gain more profit, while truck-drivers would have to take the risks of long-term effects because they are not in the position to refuse. They are at the same time robbed of the ability to decide for themselves whether to use enhancements or not and forced to be the ones bearing consequences of the use. In other words, with the unknown long-term side-effects and/or through coercion CED could create additional disadvantages and needs to those already lacking basic necessities. Thus, on this interpretation, economic disincentives for individual and corporate use are required as a matter of justice.

Legitimate policy on CED

The principles of justice require that taxes, fees and requirements of additional insurance are imposed as economic disincentives for use of CED, and that the funds obtained from those who seek advantage by enhancement be allocated to the least advantaged. Otherwise, the use of CED by healthy adults would more likely maintain or increase than reduce social inequality [1]. Furthermore, unregulated use of CED could undermine equality in an additional and very important sense. Namely, although there are factual inequalities in socio-economic status of citizens, they are equal in their ability to formulate and revise their rational life-plans, and to have equal opportunity to do so [8]. However, if their choice is dictated by market forces – that make it economically rational to pursue only one, or a limited range of options (such as to enhance) – their status as free and equal citizens is undermined. Also, according to the moral duty of civility, citizens that do wish to enhance should respect the wishes of their fellow citizens not to enhance and strive toward public policy that would protect the rights of all.

Principles of justice require as well that any medical necessities stemming from the use of enhancements are not financed from public funds, as they are the result of expensive taste (when voluntary), or are at least given the lowest priority. Moreover, the principles of justice require that the social pressure to enhance is dealt with efficiently so that no citizens are coerced to take enhancements in order not to lose their jobs. The principle of fair equality of opportunity requires that either enhancements be forbidden as a form of cheating in competitive situations or that those who do not use enhancement be somehow compensated.

All this could be achieved by introducing the economic disincentives model (EDM). Under this model an already existing government agency (e.g. FDA) would offer a licensing procedure to pharmaceutical companies to market CED for healthy adults. This way all citizens could have legal access to CED, but with the imposition of taxes, fees and re-

quirements of additional insurance, it creates financial and regulatory burdens for their use.

EDM envisions an additional licensing procedure for users — in order to use CED citizens would have to pay fees for a course about known effects and side effects, and pass an exam as proof of knowledge. Furthermore, an additional medical insurance and obligatory annual medical tests would need to be taken in order to obtain (and renew) a license to use

CED. Also, the prices of CED would be regulated – they would contain the standard costs of production and distribution, the profit margin would be limited and an additional tax would be imposed. The companies earning profits obtained from CE would be further taxed and obliged to invest extensively in orphan drugs. The funds gained by such policy would be invested in providing medical necessities for the least well-off and any remaining funds would be allocated to finance education.

Conclusions

EDM would be legitimate as it is in accordance with the requirements of justice, and it does not undermine the autonomy of citizens any more than taxes on alcohol and tobacco do. However, the arguments presented above cannot resolve the issue, and should be understood only as a conceptual analysis. In order to reach definite norms for social regulation, citizens and their representatives should participate in an open discussion in the public forum, in which reliable data (for specific drugs) on consumption and demand, and long-term effects is analyzed.

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Meet the Author: An Interview

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His research interests include Neuroethics, Philosophy of neuroscience and technology, Bioethics, Political theory, Moral theory, Business ethics, Philosophy of law. He has over 20 publications in moral, legal and political philosophy and in Neuroethics. The most recent are: "Toward a legitimate public policy on cognition-enhancement drugs", *American Journal of Bioethics – Neuroscience*, 3/3 (2012): 29-33; and "Principles of Justice as the Basis for Public Policy on Psychopharmacological Cognitive Enhancement", *Law, Innovation and Technology*, 4/1 (2012): 67-83.

Where were you born and how old are you?

Vrbas, Yugoslavia (now in Serbia). I´m 34.

How do you pronounce your name?

Velyko Dooblyevich; International Phonetic Alphabet: (ʏ̌ːʌkɔ dubʌ̌ʏitɕ];

Where were you educated and what did you study?

I studied Philosophy at University of Novi Sad, Yugoslavia. After graduating, I was interested in applied ethics, so I enrolled in a Master´s course in Economics/Business Ethics. After that I did a PhD in Political Theory at University of Belgrade, Serbia.

Since I wanted to do research in Neuroethics I applied for a PhD scholarship at the Research Training Group "Bioethics", International Centre for Ethics in the Sciences and Humanities, University of Tübingen, Germany. One of my advisors from Tübingen received a full Professorship for Philosophy of Science and Technology at University of Stuttgart, Germany, so I am currently enrolled as a PhD candidate in Philosophy there.

Where do you live now?

Tübingen, Germany.

What languages do you speak? (if relevant)

Serbo-Croatian (Native), fluent in English and German

What initially drew you to Neuroethics and when?

As part of my interest in applied ethics I read *Neuroethics: Challenges for the 21st Century* by Neil Levy. I was immediately drawn to neuroethics, because this is the only area of applied ethics that has tremendous bearing on moral and political philosophy. The ethical challenges of neuroscience and technology – relating to direct interventions in the brain and cognitive abilities – have irrevocably shifted my research focus toward neuroethics.

That is why I decided to broaden my knowledge of neuroscience and empirical moral psychology, and chose to apply for a second PhD in philosophy of neuroscience/neuroethics after finishing my PhD in political theory. I am very happy with that choice since as a PhD student I was able to attend, among other courses, "Brain Stimulation Techniques", "Physical and Physiological bases of Neuroimaging", "Neurochemistry and Neurotransmitters" and "Behavioural Neuropharmacology" at the Graduate School for Neuroscience and the Max Planck Institute for Biological Cybernetics in Tübingen.

How did you get involved with the International Neuroethics Society?

I was looking for academic and professional associations in the field. I found out that the International Neuroethics Society is the best global platform for cooperation among scholars interested in neuroethics.

What area of neuroethics interests you the most?

My dissertation focuses on ethical evaluation and policy implications of cognitive enhancement technologies. However, my plan is to work on challenges stemming from the impact of neuroscience on basic presuppositions of moral, legal and political philosophy in the future. I took the courses in neuroscience I mentioned in order to get a deeper understanding of my topic and to prepare for future research agenda.

What projects are you currently involved in?

I have recently started working on an edited volume with Fabrice Jotterand. The working title is "Cognitive Enhancement: Ethical and Policy Implications in International Perspectives". This project is one of the activities that have grown out of INS Working Group collaborations, and I would like to use this occasion to invite other interested members – especially co-members from the Cognitive Enhancement Group — to consider contributing.

Where do you see the future of neuroethics heading in the next five years?

Neuroethics is still growing so it's hard to predict mainstream developments. However, I can say what I hope the future will be. Neuroethics should be included as part of the agenda of all organizations dealing with neuroscience/neurology in education, research and clinical settings.

What advice would you give to someone looking to break into the field of neuroethics?

Neuroethics is especially interesting because scientific and philosophical perspectives really merge, and not only meet. That demands taking both points of view however, which needs some getting used to. As a pragmatic advice, I would recommend reading some "Very short introductions..". This Oxford series is a valuable resource for the first step in interdisciplinary work. For people coming from the humanities or social sciences, *The Brain: A Very Short Introduction* by Michael O´Shea could be a good starting point before jumping into literature on neuroethics. For those coming from natural sciences *Ethics: A Very Short Introduction* by Simon Blackburn might come in handy.

What was the last country you visited and why?

United States. I was in New Orleans, presenting my paper "The Post-metaphysical Concept of Autonomy in Neuroethics" at the INS Annual Meeting. I also enjoyed the food in the French Quarter and wonderful jazz in the evening.

Do you have a favorite quotation?

Attempto! (I Dare!)- Motto of University of Tübingen

Editor's Column

This 77th edition of the *Carrier* is another in the Neuroethics in Neuroscience Series. The article was written by Veljko Dubljevic from Germany. He is a very interesting young scholar. Rather than the usual brief background vita, we have included an "interview" with him that lays out his background and interest areas. He attended last year's International Neuroethics Society (INS) meeting after receiving a travel grant from the Society (sponsored by this Editor) and was a very delightful person to meet. His contribution on the use and ethics of cognitive enhancing drugs and potential social effects is an important contribution to our thinking about the directions that neuroscience is going. How the information that comes from our laboratories and studies is used must be of vital importance to all of us. We are the ones best positioned to interpret and guide society in using the information, but we must pay attention to these directions and carefully examine the issues involved. I hope that some of you will attend the upcoming International Neuroethics Society meeting in San Diego right before the Society for Neuroscience meetings in November. Please visit the INS website (www.neuroethicssociety.org) for more information.

How time flies. It is mid-May here in Florida, which means that the hurricane season is coming soon, and the stone crab claw season has just ended. Hurricanes are a source of dread for us here, as they obviously can cause great damage, as evidenced by the super storm Sandy in New York. They are also a great source of interest as we follow the development and projected path of the storms. The National Hurricane Center has done a great job of predicting the paths and intensities of storms in the past and this year the predictions are to be even better. However, there is always a margin of error that often leads to different outcomes than expected. We hope that this year will be a quiet year for the big storms and that any that develop do little damage. We will see.

As for the regional delicacy of stone crab claws, the season just ended on May 15. Stone crabs are found around jetties and oyster beds and they eat oysters and other small crustaceans. Their claws are of unequal size, with one being very strong, easily crushing oyster shells. The stone crabs are caught and one or both claws are broken off and the crab thrown back. The claw or claws usually regenerate fairly quickly (within a year or less) and the animal goes on its way, although some do die as a result of the amputation. The claws were made famous by the Miami restaurant Joe's Stone Crab and are now widely available during the season. The tough claw shell is cracked and the meat eaten, usually with drawn butter or a mustard or cocktail sauce. They are delicious. We eagerly await the start of the claw season on October 15 each year. The crabs are caught on the Gulf Coast of Florida. This year, however, the harvest was down due to weather and to an influx of octopus that are the main carb predators. We hope that next year will be better. If you can, try some stone crab claws next year.

We are looking forward to seeing many of you at the November Society for Neuroscience meetings in San Diego, and please make plans to stop by the Kopf booth to say hi and look at the wonderful equipment that will be on display. In the meantime, we hope you have a great summer.

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