



The Medicalization of Society: Ways and Boundaries of Increasing Performance

Summer 2016

Course description

People perceive an increase in performance requirements that is often associated with increasing stress levels. At the same time scholars and the media speak of a medicalization of society. It is assumed that this increase in performance requirements leads healthy people to take drugs to increase their cognitive performance. In this interdisciplinary course, we get introduced to potentials and dangers of substance-based (e.g. Ritalin, Modafinil, or Caffeine) and non-substance-based strategies (e.g. meditation, physical activity, or brain stimulation) to enhance cognitive performance (in the media and scholarly debated this is often referred to as “Cognitive Enhancement” or “Brain Doping”).

After an introduction to the topic, we will mainly focus on substance-based enhancement. Therefore, we will discuss the prevalence of cognitive enhancement in different populations and problems associated with measuring this prevalence (e.g. social desirability bias).

We will then review sociological, socio-psychological, psychological, and criminological theories that aim to explain the consumption of performance enhancing drugs. Among these theories are: rational choice theory, social learning theory, theory of planned behavior, and strain theory. We will learn about empirical studies that examine characteristics of the substances, personal characteristics, and social characteristics that are assumed to influence substance intake or the denial of doing so.

This is followed by an ethical discussion of reason for and against substance use among healthy individuals in general and in particular in healthy children, for example, with a reference to fairness norms, and the equal chances. Furthermore, we will discuss prevention strategies and policy implications regarding substance use. Within the seminar, we will also explore tasks for future research and ways to approach these tasks.

Besides presentations, the seminar includes interactive elements such as discussions and research-oriented group works.

Day 1

Introducing the topic, explaining the goals, topics, and requirements of the seminar

Break

1. Presentation: Overview about prescription drugs used for cognitive enhancement

Which prescription drugs are potential enhancers? For which cognitive functions are they used (e.g. augmented concentration or memory)?

Basic literature for all

Glannon W (2008) Psychopharmacological enhancement. *Neuroethics* 1: 45-54.

Normann C, Berger M (2008) Neuroenhancement: status quo and perspectives. *European Archives of Psychiatry and Clinical Neuroscience* 258: 110-114.

Optional literature (only mandatory for presenters)

Repantis D, Schlattmann P, Laisney O, Heuser I (2010) Modafinil and methylphenidate for neuroenhancement in healthy individuals: a systematic review. *Pharmacological Research* 62: 187-206.

Battleday RM, Brem AK (2015) Modafinil for cognitive neuroenhancement in healthy non-sleep-deprived subjects: A systematic review. *European Neuropsychopharmacology* 25: 1865-1881.

Lunch break

2. Presentation: Overview about legal substances and non-pharmacological methods for cognitive enhancement

Which legal substances and which non-pharmacological methods are discussed as potential cognitive enhancers? Which effects have been found on which cognitive functions?

Basic literature for all

Bostrom N, Sandberg A (2009) Cognitive enhancement: methods, ethics, regulatory challenges. *Science and Engineering Ethics* 15: 311-341.

Dresler M, Sandberg A, Ohla K, Bublitz C, Trenado C, et al. (2013) Non-pharmacological cognitive enhancement. *Neuropharmacology* 64: 529-543.

Optional literature (only mandatory for presenters)

Fox KCR, Nijeboer S, Dixon ML, Floman JL, Ellamil M, Rumak SP, et al. (2014) Is meditation associated with altered brain structure? A systematic review and meta-analysis of morphometric neuroimaging in meditation practitioners. *Neuroscience & Biobehavioral Reviews* 43: 48-73.

Nurk E, Refsum H, Drevon CA, Tell GS, Nygaard HA, et al. (2009) Intake of Flavonoid-Rich Wine, Tea, and Chocolate by Elderly Men and Women Is Associated with Better Cognitive Test Performance. *The Journal of Nutrition* 139: 120-127.

Und Supplements: <http://jn.nutrition.org/content/suppl/2008/12/19/jn.108.095182.DC1/nut095182ST01.pdf>

Pause

3. Presentation: Prevalence of cognitive enhancement drugs and drug sources

How prevalent is the use of cognitive enhancement in different populations? What are the sources of cognitive enhancement drugs?

Basic literature for all

Dietz P, Striegel H, Franke A, Lieb K, Simon P, et al. (2013) Randomized response estimates for the 12-month prevalence of cognitive-enhancing drug use in university students. *Pharmacotherapy* 33: 44-50.

Sattler S (in press) Cognitive enhancement in Germany: Prevalence, attitudes, terms, legal status, and the ethics debate. In Jotterand F, Dubljević V (Eds.), *Cognitive enhancement: Ethical and policy implications in international perspectives*. Oxford: Oxford University Press.

Optional literature (only mandatory for presenters)

Marschall J, Nolting H-D, Hildebrandt S, Sydow H. (2015) Gesundheitsreport 2015. Analyse der Arbeitsunfähigkeitsdaten. Update: Doping am Arbeitsplatz. (nur S. 54-62 sowie 81-82 sowie 107-117!!). Berlin/Hamburg: DAK/IGES.

Ragan CI, Bard I, Singh I (2013) What should we do about student use of cognitive enhancers? An analysis of current evidence. *Neuropharmacology* 64: 588-595.

Input from current research (Sattler) and discussion to presentation 3: How prevalent is the use of prescription drugs for cognitive enhancement? Measuring the prevalence with a special technique.

Organizational issues and questions of the day and regarding the next day

Day 2

4. Presentation: Factors influencing the use of cognitive enhancement substances – Part 1

Part 1: Which mechanisms and theories are used to predict and interpret the use and non-use of cognitive enhancers? Which characteristics of drugs, individual, and social factors empirically influence the decision to use or not use cognitive enhancers?

Basic literature for all

Cutler KA (2014) Prescription stimulants are "a okay": applying neutralization theory to college students' nonmedical prescription stimulant use. *Journal of American College Health* 62: 478-486.

Ford JA, Ong J (2014) Non-medical use of prescription stimulants for academic purposes among college students: A test of social learning theory. *Drug and alcohol dependence* 144: 279-282.

Sattler S, Sauer C, Mehlkop G, Graeff P (2013) The Rationale for Consuming Cognitive Enhancement Drugs in University Students and Teachers. *PLoS One* 8: e68821.

Optional literature (only mandatory for presenters)

Cavola L, Mannino A, Savulescu J, Faulmüller N (2014) Cognitive biases can affect moral intuitions about cognitive enhancement. *Frontiers Systems in Neuroscience* 8: 195.

Sattler S, Mehlkop G, Graeff P, Sauer C (2014) Evaluating the drivers of and obstacles to the willingness to use cognitive enhancement drugs: the influence of drug characteristics, social environment, and personal characteristics. *Substance Abuse Treatment, Prevention, and Policy* 9: 8.

Break

5. Presentation: Factors influencing the use of cognitive enhancement substances – Part 2

Part 2: Which mechanisms and theories are used to predict/interpret the use and non-use of cognitive enhancers? Which characteristics of drugs, individual, and social factors empirically influence the decision to use or not use cognitive enhancers?

Basic literature for all

Ford JA, Schroeder RD (2009) Academic strain and non-medical use of prescription stimulants among college students. *Deviant Behavior* 30: 26-53.

Wolff W, Brand R, Baumgarten F, Lösel J, Ziegler M (2014) Modeling students' instrumental (mis-) use of substances to enhance cognitive performance: Neuroenhancement in the light of job demands-resources theory. *BioPsychoSocial Medicine* 26: 12.

Optional literature (only mandatory for presenters)

Sattler S, Wiegel C (2013) Test anxiety and cognitive enhancement: the influence of students' worries on their use of performance-enhancing drugs. *Substance Use & Misuse* 48: 220-232.

Wolff W, Baumgarten F, Brand R (2013) Reduced self-control leads to disregard of an unfamiliar behavioral option: an experimental approach to the study of neuroenhancement. *Substance Abuse Treatment, Prevention, and Policy* 8:41.

Input from current research (Sattler) and discussion to presentation 5: Work-related stress and cognitive enhancement among university teachers in Germany

Lunch break

Explanations of expectations and exercise for the final assignments

Break

Workshop for future research I: Group work targetting future research questions (presentation of the results on the last day of the seminar)

Organizational issues and questions of the day and regarding the next day

Day 3

6. Presentation: Normative evaluation of cognitive enhancement

Which individual, social, and ethical problems are expressed by opponents of cognitive enhancement and how do proponents of enhancement react to these arguments. What factors influence the moral perception of cognitive enhancement empirically?

Basic literature for all

Farah MJ, Illes J, Cook-Deegan R, Gardner H, Kandel E, et al. (2004) Neurocognitive enhancement: what can we do and what should we do? *Nature Reviews Neuroscience* 5: 421-425.

Greely H, Sahakian B, Harris J, Kessler RC, Gazzaniga M, et al. (2008) Towards responsible use of cognitive enhancing drugs by the healthy. *Nature* 456: 702-705.

Sahakian B, Morein-Zamir S (2007) Professor's little helper. *Nature* 450: 1157-1159.

Optional literature (only mandatory for presenters)

Forlini C, Racine E (2009) Autonomy and coercion in academic "cognitive enhancement" using methylphenidate: perspectives of a pragmatic study of key stakeholders. *Neuroethics* 2: 163-177.

Sattler S, Forlini C, Racine É, Sauer C (2013) Impact of Contextual Factors and Substance Characteristics on Perspectives toward Cognitive Enhancement. *PLoS One* 8: e71452.

Schermer M (2008) On the argument that enhancement is "cheating". *Journal of Medical Ethics* 34: 85-88.

Break

<p>7. Presentation: Normative evaluation of cognitive enhancement in young people</p> <p>Please describe the discussion about cognitive enhancement in young people. Are young people a special case? Why? What needs to be considered for the use of cognitive enhancement in young people and who is responsible for the respective decision-making?</p> <p><u>Basic literature for all</u></p> <p>Ball N, Wolbring G (2014) Cognitive enhancement: perceptions among parents of children with disabilities. <i>Neuroethics</i> 7: 345-364.</p> <p>Graf WD, Nagel SK, Epstein LG, Miller G, Nass R, Larriviere D (2013) Pediatric neuroenhancement: ethical, legal, social, and neurodevelopmental implications. <i>Neurology</i> 80: 1251-1260.</p> <p><u>Optional literature (only mandatory for presenters)</u></p> <p>Flanigan J (2013) Adderall for All: A Defense of Pediatric Neuroenhancement. <i>HEC Forum</i> 25: 325-344.</p> <p>Sattler, S., Singh, I. (2016). Cognitive Enhancement in Healthy Children Will Not Close the Achievement Gap in Education. <i>American Journal of Bioethics</i> 16: 49-56.</p>
Break
<p>8. Presentation: Prevention and regulation of cognitive enhancement</p> <p>What are the practical implications that can be drawn from cognitive enhancement research?</p> <p><u>Basic literature for all</u></p> <p>Dubljevic V (2013) Prohibition or Coffee Shops: Regulation of Amphetamine and Methylphenidate for Enhancement Use by Healthy Adults. <i>The American Journal of Bioethics</i> 13: 23-33.</p> <p>Franke AG, Northoff R, Hilt R (2015) The Case of Pharmacological Neuroenhancement: Medical, Judicial and Ethical Aspects from a German Perspective. <i>Pharmacopsychiatry</i> 48: 256-264.</p> <p><u>Optional literature (only mandatory for presenters)</u></p> <p>Dubljevic V (2014) Response to Open Peer Commentaries on “Prohibition or Coffee Shops: Regulation of Amphetamine and Methylphenidate for Enhancement Use by Healthy Adults”. <i>The American Journal of Bioethics</i> 14: W1–W8.</p>
Lunch break
Workshop for future research II: Group work targetting future research questions (presentation of the results on the last day of the seminar)
Break*
Poster exhibition and evaluation of the posters
Organizational issues and questions of the day and regarding the next day
Day 4
Talk show regarding the rights and wrongs of of cogntive enhancement from the perspective of different stakeholders (e.g. physicians and parents)
Break
Workshop for future research III: Presentation of the results of the group works
Lunch break
Workshop for future research IV: Presentation of the results of the group works
Awarding the Best-Poster-Awards; final discussion regarding open questions in the topic and final assignments; Evaluation of the seminar