Cognitive Enhancement at the workplace and in study: Prevalence, causes and ethical issues

Course Outline

The use of substances in order to increase the mental ability e.g. concentration and memory - also known as Cognitive Enhancement or Brain doping - is an issue that is being widely medial and scientifically discussed. Research on this subject is characterized by interdisciplinarity (of psychology, sociology, medicine, pharmacology, neuroethics, etc.). Amongst other, the workplace conditions, but also personality traits and influences of the social environment are theoretically discussed to be risk factors for the revenue of potential enhancement substances and further on are tested empirically.

The seminar aims to consider the distribution of the use of enhancing medication in different populations, taking into account problems with the prevalence measurement. In addition, psychological, socio-psychological, sociological, and criminological theories to explain the substance use are discussed and empirically determined individual and contextual predictors are presented which are lying behind the use decision. Additionally, students can get to know the problems associated with the ethical problems of the use of enhancing medication and as well the preventive measures. The seminar includes interactive elements such as discussions and research-oriented group work.
Syllabus

Day 1

<table>
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<tr>
<th>Time</th>
<th>Activity</th>
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<tr>
<td>13:00-14:00</td>
<td>Introduction to the subject, description of the seminar objectives, topics and requirements</td>
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<tr>
<td>14:00-14:05</td>
<td>Break*</td>
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| 14:05-14:55   | **1. Session: Overview of prescription substances for Cognitive Enhancement, CE (Lecture time approx. 30 minutes)**
|               | Which prescription substances are discussed as potential enhancer for which cognitive functions? Present the substances (such as Modafinil and Methylphenidate). What are they actually prescribed for? Can the effects and side effects of the substances (positive and negative) be proved? |
|               | **Note** Preliminary it should be mentioned why these questions are of relevance. This session should be concentrated on the prescription of substances (e.g. not caffeine or Ginkgo, which will be presented in the next session) and the increase in cognitive performance (Cognitive Enhancement). The 'improvement' in moral/social behavior (Moral Enhancement and Enhancement of Social Interactions) and Mood Enhancement should not be presented. Do not provide information on bio-chemical processes as well as on the distribution of Cognitive Enhancement. If you use less familiar technical terms, please "translate" them (e.g. possible side effects of cognitive enhancers such as tachycardia). |
|               | **Basic literature**
|               | **Additional literature**
| 14:55-15:05   | Break*                                                                   |
| 15:05-15:55   | **2nd Session: Overview of legal substances and non-pharmacological methods for Cognitive Enhancement (Lecture time approx. 35 minutes)**
|               | Which legal substances and which non-pharmacological methods are discussed in the context of Cognitive Enhancement and which effects can be detected in the cognitive functions? |
|               | **Note** Preliminary it should be mentioned why these questions are of relevance. Here it should also only be about Cognitive Enhancement. The substances or methods may be caffeine, ginkgo or flavonoids or deep brain stimulation or memory training and meditation, etc. Potential side effects can be addressed here. If you use less familiar technical terms, please "translate" them (e.g. possible side effects of cognitive enhancers such as tachycardia). |
|               | **Basic literature**
|               | **Additional literature**
|               | Supplemental: http://jn.nutrition.org/content/suppl/2008/12/19/jn.108.095182.DC1/nut095182ST01.pdf |
| 15:55-16:20   | Break*                                                                   |
### 3rd session: Distribution of Cognitive Enhancement and origin of the substances (Lecture time approx. 30 minutes)**

How common is Cognitive Enhancement in different populations and wherefrom do users obtain the substances?

(Following comprehension questions on the lecture can be asked immediately, the general discussion on the distribution takes place after the input by the next block.)

**Note**

Preliminary it should be mentioned why these questions are of relevance. The dissemination of Cognitive Enhancement should be displayed here as well as the problems in the measurement and the comparability of data in different studies. Factors influencing the use of cognitive enhancers should not be presented here (as this will be done in the following sessions).

**Basic literature**


**Additional literature**


### 16:55-17:30 Input from current research (Sattler) and discussion on 3rd session: How widespread is Cognitive Enhancement? Measurement of the prevalence of Cognitive Enhancement using special procedures.

### 17:30-17:35 Break!

### 17:35-18:50 Practice on chores and general requirements

### 18:45-18:50 Break!

### 18:50-19:25 Future-Workshop I: Group work on future research questions (presentation of the results takes place on day 3)

### 19:25-19:30 Organizational matters, contemporary questions and questions about the next meeting

### Day 2

### 10:00-11:00 4th session: Factors influencing the use of Cognitive Enhancement substances – Part 1 (Lecture time approx. 35 minutes)**

Part 1: From an empirical perspective, which characteristics of the substance influence the use? Are there psychological, individual and social factors influencing the use of cognitive enhancers and how can the influence of these factors be explained theoretically?

**Note**

Preliminary it should be mentioned why these questions are of relevance. Here it is expected that existing explanatory factors are presented. Which theories, theoretical assumptions and mechanisms explain the intake decision of cognitive enhancers? A consultation with Group 4 might be useful in order to avoid duplication, e.g. in the discussion of underlying theories.

**Basic literature**


**Additional literature**


### Input from current research (Sattler): The relationship between perceived occupational stress, the willingness and intake of performance-enhancing drugs among university teachers in Germany

#### 11:35-12:35  5th Session: Factors influencing the use of Cognitive Enhancement substances - Part 2

**Lecture time approx. 35 minutes**

Part 2: From an empirical perspective, which characteristics of the substance influence the use? Are there psychological, individual and social factors influencing the use of cognitive enhancers and how can the influence of these factors be explained theoretically?

**Note**

Preliminary it should be mentioned why these questions are of relevance. Here it is expected that existing explanatory factors are presented. Which theories, theoretical assumptions and mechanisms explain the intaking decision of cognitive enhancers? A consultation with Group 4 might be useful in order to avoid duplication, e.g. in the discussion of underlying theories.

**Basic literature**


**Additional literature**


### 12:35-13:35  Lunch break


**Lecture time approx. 35 minutes**

Which individual, social and ethical issues are identified by opponents of Cognitive Enhancement and what counter-arguments do proponents have?

**Note**

Preliminary it should be mentioned why these questions are of relevance. Here it is expected that various pro and contra arguments regarding the application of Cognitive Enhancing substances will be presented and discussed. The special status of children will be discussed in session 7. Please do not provide any political implications as this will be done in session 7.

**Basic literature**


**Additional literature**


### 14:35-14:40  Break

**Contact:** sattler@wiso.uni-koeln.de
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<tr>
<th>Time</th>
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<tr>
<td>16:25-17:30</td>
<td><strong>Future-workshop II:</strong> Result presentation of group work on future research questions takes place on Day 3</td>
</tr>
<tr>
<td>17:35-19:25</td>
<td><strong>Inspection and assessment of the posters</strong></td>
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<tr>
<td><strong>Day 3</strong></td>
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<tr>
<td>10:00-11:55</td>
<td><strong>Discussion on pros and cons from the perspective of different stakeholders (eg. doctors and parents)</strong></td>
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<tr>
<td>12:00-13:00</td>
<td><strong>Future-workshop III:</strong> Result presentation of group work on future research questions</td>
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<tr>
<td>14:00-15:30</td>
<td><strong>Future-workshop IV:</strong> Result presentation of group work on future research questions</td>
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