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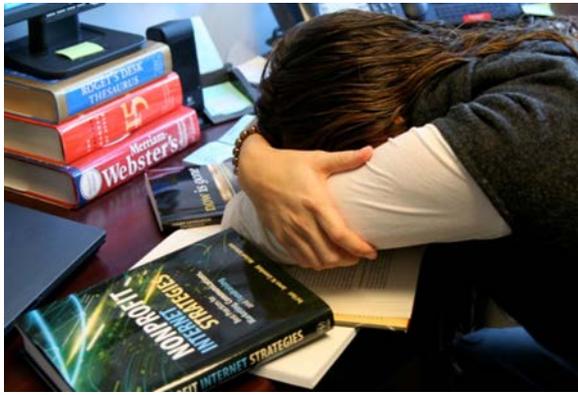
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Perceptions, practices and ethics of (non)-prescription cognitive enhancement drugs

A case study among academic youth in Amsterdam



Master's Thesis

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June 2013

Table of Content

Abstract.....	2
Chapter 1. Introduction.....	3
1.1 The Dutch Context	5
1.2 User Perspectives and Practices	7
1.3 Aim of the Thesis.....	8
1.4 Research Questions	10
1.5 Structure of the Thesis.....	11
Chapter 2. Theoretical Framework.....	12
2.1 Pharmaceuticalisation and Pharmaceutical Enhancement Technologies of the Self.....	12
2.2 Anthropology of Pharmaceuticals: Medicines as Things with Social Lives	15
Chapter 3. Research Methodology.....	17
3.1 Location.....	17
3.2 Data.....	17
3.2.1 Interviews.....	17
3.2.2 Survey.....	19
3.3 Ethical considerations	20
Chapter 4. Quantitative Results.....	22
4.1 Sample characteristics	22
4.2 Perceived and reported prevalence.....	22
4.3 Substances used.....	22
4.4 Rate of use	22
4.5 Diagnosis, distribution and access	23
4.6 Views on ethics	23
Chapter 5. Qualitative Results	25
5.1 Perceptions.....	25
5.1.1 Prevalence.....	25
5.1.2 Effects.....	28
5.1.3 Future views.....	33
5.2 Practices	35
5.2.1 Distribution	35
5.2.2 Access to the substance(s).....	36
5.2.3 Reasons and situations of use.....	38
5.3 Ethics	42
5.3.1 Freedom of use	42
5.3.2 Fairness of use	45
5.3.3 Views on Regulation through Academic Policy.....	46
Chapter 6. Discussion of Results	48
6.1 Empirical findings.....	48
6.2 Theoretical framing.....	50
Chapter 7. Conclusions and suggestions for future research	53
Appendix 1. Codes and their prevalence in the transcribed interview data.	55
Appendix 2. List of questions used in the semi-structured interviews.....	57
Appendix 3. Survey questionnaire	58
Bibliography:	61

Abstract

A phenomenon of university students using prescription stimulants such as Ritalin (methylphenidate) to enhance their academic performance has attracted attention from researchers, bioethicists, governmental officials and the media primarily in the USA. Although the estimates of prevalence and efficacy of these drugs vary their use has raised various ethical questions in the academic literature. This Master's Thesis explores this phenomenon for the first in Amsterdam and examines how university students themselves perceive ethical issues of freedom, fairness and academic policy regulation in regard to non-prescription cognitive enhancement drugs (CED's). It also enquires how they perceive their prevalence, effects and future usage and what kind of social practices are involved in distributing and accessing these substances.

15 semi-structured interviews of "users" and "providers" among university students in Amsterdam were conducted by the author. Quantitative online survey (N=113) provides additional data to triangulate the findings. The perceptions, practices and ethics of students using non-prescription cognitive enhancement drugs to enhance their academic performance is an under researched topic within medical anthropology and sociology, especially in Europe.

According to this research a minority of students in Amsterdam have tried non-prescription CED's as 'study aids' mostly while under academic pressure. The actual effects were often considered mild and in some cases even adverse. The students accessed these substances mainly from friends with a diagnosis. They did not consider using pharmaceutical stimulants as cheating but felt that they should not be available for all. The students expressed doubts about the effectiveness of policy regulation to prevent their use in an academic setting.

Theoretically this Thesis draws on academic developments in anthropology of pharmaceuticals. Also the sociological concepts of (bio)medicalization and pharmaceuticalisation are used to give more insight to the discussion about neuroenhancement of "healthy" students through the use of pharmaceuticals. The concept of *pharmaceutical enhancement technologies of the self* can be seen as being part of the pharmaceuticalisation process but where analysis is focused at a more individual level. These concepts are reflected to Habermas's aspects of the lifeworld: culture, society and personality.

If the concept of pharmaceuticalisation is looked at only in terms of societal pharmaceutical interventions this considerably limits the agency of both individuals and pharmaceuticals. The concept of pharmaceutical enhancement technologies of the self is seen as a workable concept that brings into the discussion the ways individuals interpret and modify themselves through neurochemicals.

Chapter 1. Introduction

In the last decade or so the non-prescription use of cognitive enhancement drugs (CED's) has gained increasing attention on both sides of the Atlantic. The use of pharmaceuticals for enhancement purposes has been addressed by different policy guidelines from medical associations and governmental reports (e.g. A Report of The President's Council of Bioethics 2003; BMA 2007; AAN 2009; CEST 2009;STOA 2009; see also Outram & Racine 2011) and the subject has also gained quite some media attention where the use of prescription drugs for neuroenhancement is often portrayed "as common as coffee" (Partridge et al. 2011). The use of CED's by the "healthy", by which is usually meant using psychopharmacology "for improving the psychological function of individuals who are not ill" (Farah et al. 2004: 421), has also produced numerous academic commentaries concerning the (bio)ethics of their use (for example Rose 2002; Sahakian & Morein-Zamir 2007; 2011; Bostrom & Sandberg 2009; Cakic 2009; Greely et al. 2008; Forlini & Racine 2009a; Thaler 2009; Hesse 2010; Hyman 2006; 2011; Outram 2010; 2011; Arria & DuPont 2010).

There has also been a number of studies showing the prevalence of non-prescription use of CED's specially among college and university students on campuses across the United States (Babcock & Byrne 2000; Graff Low & Gendazsek 2002; Hall et al. 2005; Sussman et al. 2006; McCabe & Teter 2007; DeSantis et al. 2008; DuPont et al. 2008; Arria et al. 2011; Rozenbroek & Rothstein 2011). Although the estimates of their use vary widely, these studies give the impression that the use of CED's, such as methylphenidate (Ritalin) which is used mainly as a pharmacological treatment for Attention Deficit/Hyperactive Disorder (ADHD), are already used by a number of "healthy" people (Coveney et al. 2011), not least in the USA. Findings from the survey studies vary from for example 4 % (Sussman et al. 2006) to 34 % (DeSantis et al. 2008) and even up to 55% among fraternity members (DeSantis et al. 2009). Most of the commonly cited epidemiological surveys differ in the methods they used, size of the samples, sampling approaches and the questions they asked which implies caution when considering epidemiological patterns of CED use.¹

An often referenced article about the ethical use of cognitive enhancement drugs is a commentary made by Greely et al. (2008) *Towards responsible use of cognitive enhancing drugs by the healthy* in the scientific journal Nature. The authors state that "cognitive enhancement has much to offer individuals and society" (ibid., 702). However, some authors

¹ US survey literature reviews on the topic see Arria & Wish 2006; Smith & Farah 2011; review for European studies see Ragan et al. 2013

ask whether the use of CED's in an academic setting is considered cognitive cheating by using scholastic steroids (Linton 2012). Is it a form of drug abuse and therefore a public health problem (see for example McVeigh et al. 2012; McVeigh & Evans-Brown & Bellis 2012) or should their use be a matter of free and informed choice (Thaler 2009; see also Hesse 2010)? Fairness, safety and freedom (also from coercion to use CED's) are regularly mentioned ethical concerns in the existing academic literature (see for example Greely et al. 2008; Sahakian & Morein-Zamir 2011).

The use of cognitive enhancement drugs by healthy people in the academic literature is often considered around a dichotomy between therapy and enhancement (Coveney et al. 2011: 381 - 382) although these are sometimes difficult to separate from each other. As Rose (2002: 978) points out "there is a fine medical and ethical line between correcting deficits and improving on 'normality'". Outram (2010:201) sees that "The discussion concerning the use of methylphenidate may be the product not of its future potential as a sociologically significant form of an enhancement, but the product of a changed social context in which the barriers between enhancement and treatment are already breaking down." The discussion around the therapy-enhancement distinction is too vast to be presented here in detail. However the distinction between therapy and enhancement does have real-life consequences; conditions that are seen as in need of cure or prevention and therefore require some form of therapy are eligible for medical services and insurance coverage while improving a condition that is seen as normal is often denied compensation (Daniels 2000). In the context of using prescription drugs to enhance study situations, their use might also have legal consequences; for example methylphenidate is listed as Schedule I drug under the Dutch Opium Act (1976) and therefore considered a 'hard drug' if used without a prescription.

Do these drugs actually enhance the cognitive functions of healthy people? Lanni et al. (2008) reviewed neuropharmacological literature about neuroenhancement drugs with a focus on such cognitive functions like memory, attention and creativity. While the connection between creativity and 'smart drugs' was not explicitly expressed in the literature, some of the findings suggest that different kinds of enhancement drugs have an impact on memory and attention of healthy people even though fairly modest one (Lanni et al. 2008; see also Farah et al. 2004; Jones & Morris & Nutt 2007; Husain & Mehta 2011; Smith & Farah 2011; Repantis D et al. 2010). A problem of measuring the effects of cognitive enhancement drugs with healthy people is the lack of agreement on a standardized test battery (Husain & Mehta 2011: 31). Also the way they work in real-life situations should be taken into account (Smith & Farah 2011).

Neurocognitive enhancement through the use of pharmaceuticals is a topic that has not yet received much attention from a medical anthropological and sociological perspective although the need for empirical inquires has been recently recognised in anthropology (Quintero & Nichter 2011) and sociology alike (Coveney et al. 2011). The majority of the research on the (non)-prescription use of CED's comes from the United States while European studies are still rare (see e.g. Ragan et al. 2013; Mache et al. 2012; Nelson 2012²) although the use of Modafinil (brand name Provigil) which is meant for treating narcolepsy and other sleep disorders but also has a reported non-medical usage has gained sociological attention in the UK (Williams et al. 2008; 2013; Coveney et al. 2011). Other parts of the world are under represented. However Singh and Keller (2010: 5) suggest that "while the evidence is at present mainly anecdotal, the use of stimulants as neuroenhancers appears to be a growing trend among university students around the world."

1.1 The Dutch Context

The Netherlands is known for its relatively tolerant drug policy and Amsterdam in particular is known for its coffee shops where people over the age of 18 can purchase cannabis products which are considered 'soft drugs' under the Opium Act (1976) and therefore hold a more legal status compared to 'hard drugs' (e.g. ecstasy, cocaine, heroin, LSD, amphetamine) which are seen as causing unacceptable risks for the users (Government of the Netherlands 2013). Amsterdam has also a vast number of 'smart shops' which sell different psychoactive products in the form of herbs and drinks. The Netherlands also remains as one of the biggest manufacturers of amphetamines and ecstasy in Europe (UNODOC 2011: 51 - 57). Although I will concentrate on prescription medication it is also worth noting that the policy around cannabis has become more strict in recent years especially in terms of its cultivation which "has had consequences for enforcement and detection" (Wouters 2013: 112; see also Korf 2002). As mentioned above non-prescription use of for instance Ritalin is illegal in the Netherlands but the implementation of regulative policy poses challenges as will be discussed in one of the subchapters.

In the Netherlands the number of people consuming prescribed ADHD medicines increased 6.5- fold between 2001 and 2006 (Van den Ban et al. 2010). Current literature suggests that students who use prescription medication for non-medical reasons often receive them free

²This dissertation was part of a larger and ongoing 'UK Smart Drug Study', led by Dr. Ilina Singh. The data of the dissertation was asked to be kept confidential by the author at this point.

from their friends and relatives with a diagnosis (e.g. Poulin 2007; DuPont et al. 2008; Garnier et al. 2010). In a survey conducted by Garnier et al (2010:265) the authors also found that ADHD medication was the most commonly diverted medication among college students who had been prescribed with medication for their condition. An increase in the prescription use might lead to an increase in the non-prescription use of medication although this would need to be surveyed through longitudinal studies. Van den Ende et al (2010) used quantitative and qualitative methods to enquire the reasons and effects of non-prescription ADHD medication use. Ritalin was the most used ADHD medication and of the 162 respondents 60 % reported using it for recreational purposes and 32% to perform better at studying or at work. A considerable amount of the respondents reported using ADHD medication in combination with other substances, mainly alcohol. The respondents reported more positive than negative effects (ibid. 23 - 26.) Although almost half of the respondents (48%) were students, the research did not concentrate specifically on university students.

A recent national online survey in the Netherlands found that 7,1 % of 14 to 17 year olds had tried prescription medication in a non-medical way while 2 % had tried ADHD medication which they received mostly from friends (Ganpat et al. 2009). According to an annual mixed-method study that monitors the use of different substances among young people in Amsterdam, the lifetime use of Ritalin doubled from 2007 to 2011. The study indicates that the use of substances increases by age; a survey of 870 secondary school pupils found that 3% of the first to third year pupils had taken Ritalin at some point in their lives with or without a prescription while among older pupils 6% had done so (Benschop et al. 2011). A national survey on the use of illicit and licit drugs in the Netherlands in 2001 showed that the use of “smart drugs”³ was highest among 20 - 24 year olds (12,6 %) and especially high in the same age cohort in Amsterdam (21,5 %) compared to, for example, the same age cohort in Rotterdam (6,3 %) (Abraham et al. 2002: 218). The survey also enquired about the use of performance enhancement drugs, which included stimulants (e.g. amphetamines, cocaine and caffeine) “taken in high doses to enhance performance” with a life-time prevalence rate of 0,7%.

A recent news article states that a growing number of young Dutch people are addicted to Ritalin (RNW 2011). This however referred to its recreational use which is not the focus of this research. The focus of this study is to see what kind of social practices, perceptions and

³ Abraham et al (2002) define smart drugs as “a class of synthetic and natural supplements taken to enhance cognitive function” and it was added to the list of substances enquired in the 2001 survey.

ethical issues are involved in the (non-)prescription use of cognitive enhancement drugs among university students in Amsterdam. The main focus is on students who have tried pharmaceutical cognitive enhancers to have an effect on their studying and on students who distribute their own prescription medication amongst their peers.

1.2 User Perspectives and Practices

Even though some studies have tried to find out the justifications behind the use of cognitive enhancement drugs (for example DeSantis & Hane 2010), user perception especially on the ethics of their use has not been looked at within the existing literature from a point of view of the people who actually use these substances with an aim to enhance their cognitive abilities. Overall, according to Vrecko (2013: 5) “there is at present a lack of findings from in-depth, qualitative research that examines the everyday uses and users of medications.” Certainly, amongst the European studies reviewed by Ragan et al. (2013) none inquired about the perceived effects of CED’s.

Lately there has been an increasing interest on the perspectives, attitudes and motivations of young people and students who use CED’s (DeSantis et al. 2008; 2010; DuPont et al. 2008 Aikins 2011; Franke & Lieb & Hildt 2012; Nelson 2012; Quintero 2012; Vrecko 2013). Young people often consider prescription medications as “soft drugs” as they are more commonly used and seen as legal and they are viewed as having fewer side-effects or addiction potential as “hard drugs”; they may also have positive effects in different social situations and lifestyles (Quintero 2012: 513 – 519; see also DeSantis & Hane 2010; Aikins 2011). The main reported reasons for using non-prescription ADHD stimulants according to DeSantis et al. (2008: 318) were to stay awake to study, to help concentrate and memorize. Aikins (2011: 566) interviewed 12 students in a West Coast University who took prescription stimulants licitly or illicitly and both types of users “overwhelmingly felt that prescription stimulants enhanced their ability to perform academic tasks.” They did however also report unpleasent side-effects which they thought to be ‘worth it’ (ibid.,567). Over half of the interview participants (N=10) in a study conducted by Franke and colleagues (2012) did not see a moral difference between the use of stimulants and caffeine for cognitive enhancement purposes.

The ethics of cognitive enhancement drugs used by the ‘healthy’ have been debated mainly at an abstract academic level, neglecting the different practices that are involved. As Simon Outram (2011: 1) points out “cognitive enhancement raises current ethical issues that are worth addressing from an empirically-grounded and practical standpoint.” Outram (2011) provides a set of empirically-constructed analytical frameworks that he uses to provide a way to discuss “cognitive enhancement as an observable set of practices.” These frameworks

include perspectives on the problem in terms of 1) risk and benefits, 2) self-medication and under-prescription, 3) prescription drug abuse and over-prescription and finally 4) cognitive enhancement. These frameworks are not mutually exclusive and help to identify a variety of issues that are related to the use of cognitive enhancement drugs. In addition to these frameworks we could add the perspective of (non)compliance (see Van der Geest et al. 1996: 164 – 167). People who provide their prescription medication to the ‘healthy’ can be viewed as being noncompliant to their diagnosis and treatment. This is an area of study that also needs to be taken in to consideration when looking at the practices and ethics of cognitive enhancement drugs.

1.3 Aim of the Thesis

It is argued that “lay” people can also make sound ethical evaluations and that ‘ordinary ethics’ are an important part of ethical debates around current bioethical issues (see for example Banks et al. 2006). Interest among anthropologists about anthropological research of ethics has created a fairly recent academic discussion about the topic (Faubion 2001; Laidlaw 2002; Zigon 2007; 2008; Fassin 2008;2012 ed.; Caduff 2011). For example Zigon (2008: 1 – 3) argues that despite the fact that morality has been a subject of interest in moral philosophy for at least two millennia, moral philosophy has not been interested in the moralities of everyday life. Anthropology has also failed in Zigon’s view to grasp this topic in a subtle and in-depth way which is mainly due to the lack of precise definition or confusion about the concept of morality or moralities (see also Zigon 2007). In addition some authors have expressed a need for a more sociological approach to the field of bioethics (DeVries & Conrad 1998). Without going into too much in detail of these discussions it is claimed that empirical social research is important contributor to the different ethical debates that emerge around the use of pharmacological enhancement. As Smith and Farah (2011: 736) point out “Although ethical issues cannot be decided on the basis of facts alone, neither can they be decided without relevant facts.” As bioethicists are often concerned how the world of medicine should be, sociologists are trying “to study the medical world as it is” (DeVries & Subedi 1998; xv). According to DeVries & Conrad (1998: 234) the purpose of bioethics could be seen as “*to provide an **independent and reasoned** voice in medical decision making*” (italics and bold in the original). What social sciences can bring to the discussion is to show the importance of social context in that decision making process (ibid., see also Light & McGee 1998; Haimes 2002). Social scientific research offers valuable tools to provide information to different ethical issues.

As the existing literature is mainly focused on college and university students, this study will extend the knowledge of this key user group and investigate the perspectives of university

students themselves about the use of CED's. How do users of cognitive enhancement drugs perceive the use of these substances? What kind of social practices are involved? In addition to enquiring what kind of perceptions and social practices are involved with the use of CED's the aim of this study is to see how university students perceive ethical issues of fairness and freedom to use CED's in an academic setting. Do they perceive their use as fair and do they think their use should be available for everybody who wants to use them? Could this be seen on a more theoretical level as a form of pharmaceuticalisation of everyday life (see for example Fox & Ward 2008; Williams et al. 2011; Coveney et al. 2011) in which we use different technologies to enhance our neurochemical selves (Rose 2003:2007b; Foucault 1997)? These questions function across a variety of levels and require empirical investigation about the different practices, perceptions and ethics that are involved around the use of CED's in the context of academic youth in Amsterdam. Because this study is interested in the use of CED's in an academic setting they are often referred to as 'study drugs'. Cognitive enhancement drugs in this study are mainly different types of ADHD-oriented stimulants and it seems that the most common one of these is Ritalin which will be the main focus of enquiry. However it is not reasonable to exclude other types of pharmaceutical cognitive enhancers outside of the study although other cognitive enhancers such as caffeine and energy drinks were not included. Using the term *cognitive enhancement drugs* implicitly implies that these types of drugs do enhance cognitive abilities and that this is seen as an improvement or an enhancement or that they are used specifically for that purpose (see Outram & Stewart 2013: 790). It is not the aim of this thesis to make normative statements whether the use of CED's should be considered positive or not and the term is a reflection of the conceptual terminology used in the literature (see also Coveney et al. 2011: 390 – 391).

The ethics, practices and perceptions of academic youth in Amsterdam regarding the use of cognitive enhancement drugs have not been studied before, thus this research will contribute to the body of literature surrounding the use of CED's as well as contribute in opening up the field of research in the Netherlands. Research questions will be specified below. In this research the anthropological approach to the perceptions, practices and ethics surrounding the use of CED's among academic youth derive from developments in the field of anthropology of pharmaceuticals (Van der Geest et al. 1996; Whyte et al. 2002). The sociological concepts discussed are pharmaceuticalisation and (bio)medicalisation (see for example Broom & Woodward 1996; Abraham 2010; Williams et al. 2011; Coveney et al. 2011; Bell & Figert 2012).

A qualitative study on user perceptions, practices and ethics can give more insights on the user perspective around the current ethical issues that have risen from the use of CED's, offer

a thicker description of the different practices involved and add valuable arguments to the on-going ethical debate. It will also make a contribution to the theoretical discussion around the sociological concepts of (bio)medicalisation and pharmaceuticalisation in the form of adding a newly developed concept of *pharmaceutical enhancement technologies of the self* - which is seen as part of the pharmaceuticalisation process but attributing greater level of agency to the individual. The literature around the use of CED's by healthy students has been mainly empirical surveys, clinical experiments and academical commentaries by bioethicists so this thesis provides a more theoretical framing of the topic relating the concepts and qualitative results to different aspects of Habermas's theory of the lifeworld namely culture, society and personality. Furthermore it will shed light on the question whether the use of CED's by 'healthy' university students is something that is already happening in the Netherlands and give certain initial (albeit limited) insight to what extent. Toward this latter end, and in addition to semi-structured qualitative interviews, a small web-based survey was conducted through social media to generate more quantitative data on the use of CED's among academic youth in Amsterdam. The limitations and advantages of the design, collection of data and methods used will be discussed in the Methodology section (Chapter 3). This research should be considered an exploratory or pilot work (Green & Thorogood 2004: 46 - 47) to the topic of cognitive enhancement drug use by academic youth in the Amsterdam. Before introducing the theoretical framework (Chapter 2), I will specify the research questions and present the structure of thesis.

1.4 Research Questions

There are three different but intertwined research questions which guided the empirical enquires aimed at university students who had some personal experience of cognitive enhancement drugs for the purpose of having an effect on their studying. This included both prescription and non-prescription use of cognitive enhancement drugs , although the focus was mainly on their non-prescription use. The research questions are:

- 1) How do university students perceive and report the prevalence, effects and their future usage of cognitive enhancement drugs?
- 2) What kind of social practices are university students involved in pertaining to the use of cognitive enhancement drugs - in terms of distribution, access and considerations of use?
- 3) How do university students perceive ethical issues of freedom of use, fairness, and policy regulation surrounding the use of cognitive enhancement drugs in an academic setting?

These questions can be seen to interrelate in different ways. For example As Greely et al (2008: 703) see the fairness of using cognitive enhancements “may depend on its availability, and on the nature of its effects”. If the effects that students get from using CED’s are beneficial do they see their use as fair? If they perceive that a lot of their colleagues are using CED’s to improve their academic performance do they think their use should be well-regulated? Also if students who are prescribed medication for their diagnosis don’t see the distribution of their medication as problematic and if students without a prescription have an easy access to these substances when they feel to be under academic pressure, do they think that they should be available for everybody?

1.5 Structure of the Thesis

The next chapter (Chapter 2) develops a theoretical framework for the thesis which draws upon and develops the sociological concepts of (bio)medicalisation and pharmaceuticalisation. Related anthropological approach to pharmaceuticals is also discussed. Chapter 3 introduces the design and methodology used in this research. Chapter 4 presents the results from the online survey which are divided to present basic demographics (4.1) the perceived and reported prevalence (4.2), what substances were used (4.3) and how often (4.4), their distribution and access (4.5) as well as views on ethics (4.6) in relation to gender and the perceived and reported prevalence. Qualitative results are then presented in Chapter 5 which is divided into 3 subchapters: subchapter 5.1 will consider how the university students interviewed perceive the prevalence of using CED’s among other students (5.1.1), how do they experienced the effects of CED’s (5.1.2) and do they think they will be using them in the future (5.1.3). Subchapter 5.2 looks at what kind of social practices are involved in the use of CED’s; how much did the diagnosed students distribute their medication and to whom (5.2.1); how did the undiagnosed students access the different substances (5.2.2) and for what reasons and in what kind of situations CED’s are used (5.2.3). Subchapter 5.3 is focused on ethics. Specifically do the students see that CED’s should be available for everybody or not (5.3.1)? Do they see their use as doping or cheating in an academic setting (5.3.2)? Do they think that the university should have some sort of policy about their use (5.3.3)? The results are often reflected to some of the current literature on the topic and the findings from the survey data. Chapter 6 develops a discussion of both qualitative and quantitative results in reference to the current literature and theoretical framework. Some conclusions and suggestions for future research are presented in the final Chapter 7.

Chapter 2. Theoretical Framework

2.1 Pharmaceuticalisation and Pharmaceutical Enhancement Technologies of the Self

Sociologically this research draws on recent developments of the concepts (bio)medicalisation and especially pharmaceuticalisation. Coveney et al. (2011: 382) analyse how the concepts of medicalisation and biomedicalisation could be used surrounding the debate over cognitive enhancement drugs. They argue that “Using the sociological concepts of medicalisation and biomedicalisation...we can then begin to explain how biomedical interventions come to be legitimated for use by healthy people in order to prevent the onset of disease or risks to cognitive health.” (Coveney et al. 2011: 386). Medicalisation has been introduced as a sociological concept since the 1970’s and the often cited definition is one by Peter Conrad (2005: 3) who sees it as “*defining a problem in medical terms, usually as an illness or disorder or using a medical intervention to treat it.*”(italics in the original). *Biomedicalisation* refers to medicalisation processes that are increasingly influenced by techno scientific innovations in biomedicine (Clarke et al. 2003; see also Coveney et al. 2011).

Coveney et al. (2011: 387) introduce the related term pharmaceuticalisation which in their view, compared to the above mentioned concepts, “is more specific in its remit, denoting as it does the transformation of aspects of human experience into targets for *pharmaceutical intervention* as opposed to biomedical interventions in general.” (italics in the original). The term pharmaceuticalisation is also developed by Williams et al. (2008; 2011) which they define as a process that “denotes the translation or transformation of human conditions, capabilities and capacities into opportunities for pharmaceutical intervention.” (Williams et al. 2011:711). Williams et al. (2011) offer a framework for analysing trends and transformations of pharmaceuticalisation which can be analytically useful. According to the authors one of the key sociological dimensions of pharmaceuticalisation is the non-medical use of drugs, especially cognitive enhancement drugs used by the healthy. They consider the transformation of medicine from treatment to enhancement “as another example of the move to create new drug markets through direct relationships with consumers that lie outside the control of the medical profession“ (Williams et al. 2011:719). These are not the only definitions of neither medicalisation nor pharmaceuticalisation as both of them are defined, contested and even debated over by several authors (see for example Broom & Woodward 1996; Fox & Ward 2008; Abraham 2010; Bell & Figert 2012). Because the works of Coveney et al (2011) and Williams et al (2008; 2011) are focused on different dimensions of cognitive enhancement drugs, which is the topic of this research, it is reasonable to follow

their definitions of (bio)medicalisation and pharmaceuticalisation while realising that they are not the only conceptual contributors to the terms and that the concepts themselves overlap and converge (see Coveney et al 2011: 309).

Also these concepts are not to be taken at face-value assuming that the use of cognitive enhancement drugs is part of (bio)medicalisation/pharmaceuticalisation of society. Instead, the concepts should be seen as analytical tools and they are used to theorize empirical findings that arise from exploring the use of cognitive enhancement drugs in the context of academic youth in Amsterdam. As Williams et al (2011:711) point out “both medicalisation and pharmaceuticalisation should ideally be treated as value-neutral descriptive terms and may include both gains and losses to society. Furthermore, the degree or extent to which they are occurring remains open to empirical investigation on a case-by-case basis.” The terms are seen as a starting point for an theoretical analysis without assuming that their use will lead to clear conclusions about neither medicalisation nor pharmaceuticalisation of society (see Rose 2007).

The definitions also put emphasis on different types of biomedical and pharmaceutical interventions. This does not however take into consideration the active role of users of pharmaceuticals but instead “implies passivity on the part of the medicalised” (Rose 2007: 702) or pharmaceuticalised. Partly following Rose, one way of looking at the more active role of the individuals is to see the use of pharmaceutical enhancements as what Foucault meant by technologies of the self. By technologies of the self, Foucault (1997: 225) referred to technologies “which permit individuals to effect by their own means, or with the help of others, a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality.” In a similar way Rose (2003: 58 – 59) sees that

“These new self-technologies do not seek to return a pathological or problematic individual to a fixed norm of civilized conduct through a once-off program of normalization. Rather, they oblige the individual to engage in constant risk management, and to act continually on him or herself to minimize risks by reshaping diet, lifestyle and now, by means of pharmaceuticals, the body itself. The new neurochemical self is flexible and can be reconfigured in a way that blurs the boundaries between cure, normalization, and the enhancement of capacities.”

Thus *pharmaceutical enhancement technologies of the self*⁴ are seen as being part of the

⁴ Similar kind of concepts of self, personality and identity are used often without making clear conceptual differences between them

pharmaceuticalisation process but work on a more individual level and allows a more active role for the individual. One of the key dimensions of the pharmaceuticalisation process according to Williams et al (2011) is the creation of new techno-social identities and as Williams & Calnan (1996:1613) pointing to the limits of medicalisation suggest "the structure of lay thought and perceptions of modern medicine is complex, subtle and sophisticated, and individuals are not simply passive consumers who are duped by medical ideology. Rather, they are critical reflexive agents who are active in the face of modern medicine and technological developments."

Enhancement technologies are sometimes seen as helping people to 'become themselves': "Antidepressants, stimulants, psychedelic drugs, cosmetic surgery, anti-aging treatments, sex-reassignment surgery, and even healthy limb amputations: all have been described as way of getting in touch with the true self." (Elliot 2011: 369; see also Elliot 2003). These technologies "operate on the mind and body through medical means" (Hogle 2005: 702) often with an aim to make us "better than well" (Elliot 2003) and regarding especially pharmaceutical enhancement technologies work in an "era of cosmetic neurology" (Cakic 2009). The use of CED's by university students will work as empirical case study in exploring the helpfulness of these concepts.

Both concepts of pharmaceuticalisation and pharmaceutical enhancement technologies of the self are also discussed in relation to more general social theory that is Habermas's different aspects of the lifeworld: culture, society and personality⁵. These are seen to reflect the different qualitative perspectives of perceptions, practices and ethics of CED use. In his *Theory of Communicative Action* (1987: 138) Habermas defines the terms as such:

"I use the term culture for the stock of knowledge from which participants in communication supply themselves with interpretations as they come to an understanding about something in the world. I use the term society for the legitimate orders through which participants regulate their memberships in social groups and thereby secure solidarity. By personality I understand the competences that make a subject capable of speaking and acting, that put him in a position to take part in processes of reaching understanding and thereby assert his own identity."

This framework is useful in exploring how students perception of the use of CED's reflects the knowledge that they have about the somewhat pharmaceuticalised university culture. In

⁵For an critical introduction for Habermas's work see for example Outhwaite 1994

this setting the practises around the use of CED's are seen as regulating the memberships of certain social groups and connected to their identity in a form of using pharmaceutical enhancement technologies of the self. The ethical views about their use reflect the norms or orders of these perceptions and practices in certain social group memberships and draw upon broader cultural contexts. Pharmaceuticalisation is seen as parallel to the cultural knowledge through which people view the world and forms a dialectical relation with pharmaceutical enhancement technologies of the self that are seen as ways individuals interpret and transform their neurochemical selves.

2.2 Anthropology of Pharmaceuticals: Medicines as Things with Social Lives

The sociological concepts mentioned above are used to theorize the empirical findings on a cultural, societal and individual level. However there are a additional 'agents' involved in the use of CED's and those are the pharmaceutical products themselves. This thesis is focused on particular types of pharmaceutical: those that are (allegedly) used to enhance the cognitive capabilities of humans. These pharmaceuticals can be seen as having their own 'social lives' and agency (Whyte et al 2002). Susan Whyte and her colleagues (2002: 5 – 6) state that medicines or *materia medica* are substances that have powers to transform. Usually that transformative power is used to heal or prevent diseases but medicines can also be harmful. They note that "Medicines are used intentionally to achieve an effect in some *body*." (Whyte et al. 2002: 6, emphasis in original.) As mentioned above cognitive enhancement drugs (like Ritalin) are sometimes used by people without a diagnosis of the condition the substance is originally designed for (ADHD). In this context the transformative power of medicine is not used to heal or prevent diseases but to *enhance* human capabilities.

The perspective that Whyte and others put forward on the effects of drugs differs from just looking at the chemistry behind them: "...we propose to see them [medicines] as things with social lives; we are more concerned with their social uses and consequences, than with their chemical structure and biological effects. The medicines with the most active social lives in the world today are the commercially manufactured synthetic drugs produced by the pharmaceutical industry." (Whyte et al. 2002: 3.) In 2011 money spent on medicine was 320 billion US\$ in the United States alone (IMS 2012). Medicine research, development and distribution works on a global scale framed by an interaction between different kinds of legal, political and social actors. The social lives of medicines do not stop at their distribution; at the next stage of their "biography" they come into the hands of the consumer, which is the final stage of their lives (Van der Geest et al. 1996: 156). This is the point when the medicine will be used by somebody "with the purpose of restoring, improving, or maintaining his or her health."(ibid.) Van der Geest et al state that pharmaceuticals also have a life after their

“death” which lies in their efficacy: “The fulfilment of their life purpose lies in their effect on the well-being of the person who took them. The pharmaceuticals’s efficacy is its ultimate and decisive life stage.” (Van der Geest et al. 1996: 156.)

The same authors see that “efficacy relates to *perceptions* of the powers of medicinal substances” (Whyte et al. 2002: 15, emphasis added). Mark Nichter (2008: 87) offers a list of research questions that “provide insights into how perceptions of medicines influence pharmaceutical practice.” The questions reflect on what people expect from medications, how quickly they expect them to work and how realistic people’s expectations are (ibid.) Nichter also asks if people expect medicines to cure and/or prevent illness or just to manage it (Nichter 2008: 87). Whyte and others see that medicine users are not controlling only their physiological symptoms but also their situation:

“That is, they are trying to make adjustments so that they can manage their lives and projects. Medicines are empowering in that they offer users a means of control. In making this, we place medicines within the lifeworlds of situated actors.” (Whyte et al. 2002: 15.)

Whyte and her colleagues offer different kinds of ways or positions medical anthropologists can approach issues concerning the knowledge and practice of medicines and their use. They describe a populist approach which “emphasizes the agency of consumers of medicines”. That is to say it concentrates on the capabilities and agency of consumers of medicine. The enlightened version of the populist view criticizes people’s knowledge about medicines and shows them to be at times irrational and inadequate. A critical enlightened view “problematizes the knowledge and practice of both specialist and lay people” and their beliefs on the problem-solving capacities of drugs. Lastly Whyte and others offer a pragmatic position. They see that participant observation and practical handling of problems gives the researcher an opportunity to create knowledge and work for a change. (Whyte et al 2002: 166 – 169.) These positions and seeing medicines as things with social lives opens up various possibilities for social researchers to address issues which otherwise would remain hidden.

Medicines are used by different social actors for different purposes with different perceptions and effects. In a way they possess ‘agency’ of their own and can be seen as being an important part of the different aspects of the lifeworld of CED use. The anthropological approach of researching the social lives of pharmaceuticals is seen as a theoretical method which will help to sensitise the researcher to ask for the different perceptions and practices that are involved with the use of CED’s.

Chapter 3. Research Methodology

3.1 Location

The perceptions, practices and ethics of using cognitive enhancement drugs were looked at from the point of view of university students in Amsterdam. It is considered to be an exploratory case study focused on a specific location (Amsterdam) and a certain group of people (university students) (see for example Bryman 2008: 52 - 58). There are two universities in the city of Amsterdam, the Universiteit van Amsterdam (UvA) which has almost 30 000 students (<http://www.uva.nl/en/about-the-uva/uva-profile/facts-and-figures>) and the Vrije Universiteit Amsterdam (VU) with almost 25 000 students (<http://vu.onlinetouch.nl/40#/2>). The informants were recruited from both of these universities. Nevertheless being an UvA student myself gave me an easier access to the student population studying at the UvA as I had already set up a network of social contacts there before starting my data collection period or fieldwork. I believe that being a student myself can be considered an advantage which helped me to gain information more easily from my peers as they saw me as “one of their own”.

3.2 Data

Howard Becker (1996: 53) argues that the similarities between quantitative and qualitative methods are more important than their differences. He sees that “Both kinds of research try to see how society works, to describe social reality, to answer specific questions about specific instances of social reality”(ibid.) Without going into the epistemology of either of these methods (see Becker 1996) it is noteworthy to reflect on the methods used in this study. This research uses both qualitative and quantitative methods to see how the use of CED’s is perceived, practiced and ethically valued among university students in Amsterdam. These methods are used to triangulate some of the key dimensions this thesis set out to investigate. The qualitative interview data is complemented with open-ended questions from the questionnaire concerning the actual effects and reasons to use CED’s. The perceived prevalence of the interview informants about CED usage is complemented and compared to the perceived and reported prevalence of the survey data. Also the distribution of medication, access and types of CED’s used are looked through from both qualitative and quantitative perspectives. Preliminary findings from the 6 first interviews directed the design of the survey (see 3.2.2)

3.2.1 Interviews

The informants for the interviews were recruited by snowball sampling (see for example Bryman 2008: 184 - 185; see also Vervaeke et al. 2007) and targeted sampling (Watters & Biernacki 1989). Discussing my research topic with fellow students led me to first find

informants close to my social circle. Almost every informant could point me towards another possible informant expanding the network of informants outside the familiar social circle. Semi-structured interviews (see for example Arksey & Knight 1999) were the main form of data gathering. 15 semi-structured interviews were completed and the list of 16 questions used in the interviews can be seen in Appendix 3. The interviews were conducted in English. Before entering a university Dutch students have received several years of English language education so a language barrier was not a matter of concern. It was important that the interviews by no means promoted the use of cognitive enhancement drugs (see Vervaeke et al. 2007).

Two groups of informants

The informants taking part in the interviews can be divided into two groups. The inclusion criteria for the first group of informants was that they were university students or recently graduated without a diagnosis of ADHD/ADD or any other relevant psychiatric comorbidity but have experience of non-prescription use of cognitive enhancement drugs. The number of informants in this group category was N=8 (6 females and 2 males) The second group of informants were chosen on the criteria that they were university students or recently graduated with a diagnose of ADHD/ADD or other relevant psychiatric comorbidity (which in this case was day-time-sleepiness (N=1)) and that they have distributed their prescription medication to undiagnosed students. The total amount of informants in this group was N=6 (3 females and 3 males). Most of the interviewees were Dutch (N=12) and 3 were from different EU-countries. The interviewees represented a variety of faculties including medicine, social and political sciences and business. One interview was left out of the analysis as the informant only reported recreational use of Ritalin. Although this topic is important, it is not the main interest of this study and would require empirical investigation of its own.

Managing the data

The interviews were audio recorded, transcribed and the data was coded using Atlas.ti (version 7). The average length of the interviews was approximately 20 minutes varying from around 15 minutes to 40. As most of the undiagnosed informants only had used CED's rarely often without much effects these interviews only lasted around 15 minutes. The interviews were concentrated on few spesific topics that might have also restrained the discussion from going to other important areas around the topic. Thematic analysis (see for example Bryman 2008: 554 – 555) was used as an approach to the data. To identify the themes according to the research questions the transcriptions were first coded descriptively (see Appendix 2 for the codes used and their prevalence in the data). These themes and subthemes were then analysed

separately for every qualitative results chapter. The way the results are presented is more descriptive than hermeneutic with an aim to present the themes not just according to the thematic similarities found between the informants but also the differences to give a broad perspective about this novel area of research and identify topics for future research.

3.2.2 Survey

In addition to the interviews an online survey was distributed through social media (Facebook) and via email through academic administrators. The survey was completed by 113 respondents. The survey was posted as a direct web link on different student groups from the beginning of April 2013 and it remained open until the end of May 2013. The student groups were mostly associated with the University of Amsterdam and included international student groups, medical student groups and social science student groups. The survey was also posted on a student housing group. These groups had in total almost 3000 members but it is likely that some students were members of more than one group therefore causing overlap. However it is doubtful that somebody would take the same survey twice. The level of activity of the members is also difficult to estimate. Amount of respondents increased every time the survey was posted on a new group site but as the 'newsfeed' on a particular group site increased this caused the link to 'decent' and not as likely to be seen by the members of the group anymore.

Design and purpose

Before posting the survey it was revised by student colleagues and the thesis supervisor. The questionnaire included 24 questions and it was developed after conducting 6 of the semi-structured interviews. The information attained from the interviews informed the design and content of the questionnaire (see Appendix 3). The purpose of the survey was to gain more objective information about the prevalence of CED use among university students as number of the interviewees referred their use as common. It asked whether students had tried CED's and if yes how often, what CED's they used and how did they access them. It also enquired whether students knew other people who used CED's and whether they thought their use was ethical. The survey also included open-ended questions about the purpose of use and the effects experienced. The data from these later questions are presented in the qualitative results chapters (Chapter 5). The survey results were analysed using IBM SPSS Statistics 20 by crosstabulating the different variables and looking at how they interrelated. How the views on ethics correlated between some of the variables were also tested using the Pearson chi-square and Chramers'V analysis. The focus was on in addition to basic demographics (4.1) on the perceived and reported prevalence (4.2), what substances were used (4.3) and how often

(4.4), their distribution and access (4.5) as well as views on ethics (4.6) in relation to gender and the perceived and reported prevalence.

Defining ‘study drugs’ and limitations of the survey

Arria and Wish (2006) reviewed epidemiological literature on the use of stimulants and pointed out various methodological challenges; variety of the stimulants themselves (most common ones according to Arria and Wish are methylphenidate, dexamethylphenidate, and amphetamine-dextroamphetamine combination) and their different brandnames (Ritalin, Focalin, Adderal) raises challenges to researchers who often focus only on a specific type of stimulant. Also the concept of nonmedical use can be defined in various ways. (Arria & Wish 2006.) In the beginning of the current survey cognitive enhancement drugs or “study drugs” were defined as “prescription medication (for example Ritalin, Concerta, Modafinil, Adderal) that are used to effect study situations.” The respondents were allowed to name other substances as well but emphasis was on their use in study situations. As this study is considered to be exploratory in nature concentrating only on one or two specific prescription medications might have limited the perspective about the variety of substances students might use to affect their academic performance. The respondents were given an opportunity to contact the author if they wanted to be interviewed. This however did not result in any references. The respondents were both Dutch and international students. The survey did not ask *where* the respondents had encountered study drugs if at all so it is difficult to say whether the experiences of non-Dutch respondents are from their country of origin or while they have been in the Netherlands. This is of course true for the Dutch students as well; the experience with study drugs might have been while studying in another country. However, as information travels across borders the location of the experience is in this case considered to be a matter of future research.

The sample of the survey is not representative of the whole university student population as most of the respondents studied either social sciences or medicine and there was no randomization of the sample. However using online surveys to collect data through social media is a cost-effective and quick way to gain preliminary information which can be used to direct future research.

3.3 Ethical considerations

At the beginning of the interviews, the interviewees were shown a certificate of ethical clearance which was provided by the Master’s Programme manager stating that the research was practically and ethically approved by the examination committee of Medical Anthropology and Sociology. All of the informants gave their oral consent and their

anonymity was guaranteed by the author. They were also advised that they could stop the interview at any point they wanted and the interviews would be dealt with confidentially and not distributed to any third party. Because the topic of the thesis deals with matters that are seen as illegal, oral consent can be seen as working in the best interest of the participants as a written consent form would create a record of their personal information (See Vrecko 2013: 5). To protect the anonymity of the informants pseudonyms are used when presenting the data. Also whether they are diagnosed or not (D=Diagnosed and UD=undiagnosed) and a number of the order of which they were interviewed is shown when referred to them for the first time. Short descriptions of the informants can be seen in Qualitative Table 4ab (see p. 41-42) which does not include personal information that could be used to identify the informants.

In the introduction of the questionnaire the anonymity and confidentiality of the respondents was guaranteed. The demographic and other data collected by the survey cannot be traced back to the respondents. The author is the only one with the access to the individual responses with this information stored securely. One of the reasons to conduct an online survey was that the anonymity of participating in a survey helps researchers to access legally 'sensitive' topics as the non-prescription use of medicine is an illegal activity. This does pose challenges in collecting data about it. Although the anonymity of the interview informants and survey respondents was guaranteed, the illegal status of non-prescription use of CED's might have influenced the response rate of the survey and the openness of the informants to share their experiences as well as the recruitment of potential informants.

Chapter 4. Quantitative Results

4.1 Sample characteristics

The online survey received 113 responses of which 71% (N=80) were females. Most of the respondents were the age of 18 - 24 (78%, N=88) and studied at the Universiteit van Amsterdam with only 3 responses from the Vrije Universiteit. This was expected as the groups the online link was posted on social media were mostly associated with the Universiteit van Amsterdam. Most of the students (N=56) studied social sciences and humanities. The second largest group was medical students (N=40). 59% of the respondents were Dutch (N=67), 25% were from an EU-country (N=28) and 15% from a non-EU-country (N=17). One (N=1) respondent had an unclear country of origin.

4.2 Perceived and reported prevalence

56% of the respondents (N=63) knew somebody who had tried study drugs and 21% (N=24) reported trying them. Most of the respondents who had tried them were 18 - 24 years old (N=19). Reported users were more inclined to know other people that had tried study drugs than non-users. 87,5 % (N=21) of the reported users knew other people that had tried study drugs compared to 47,2 % (N=42) of the non-users that knew other people. The ratios among genders that had tried study drugs were 13 females out 80 female respondents and 11 males out of 33. 10 of the respondents who reported trying study drugs had been diagnosed, mostly with ADD/ADHD (N=8) so the actual life-time prevalence of students who have tried at CED's without a prescription according to this sample is approximately 12% (N=14).

4.3 Substances used

Ritalin was the most common study drug to be used (N=19), followed by Concerta (N=6) and Adderall (N=4, all of the respondents that reported trying Adderall came from a non-EU country). Modafinil was mentioned by one respondent, different kinds of Racetam-group drugs by two and the use of different benzodiazepines (Oxazepam, Lorazepam and Diazepam) also by two respondents. Almost half (N=11) of the respondents who reported that they have tried study drugs named more than one substance when asked which study drugs they have used.

4.4 Rate of use

Only 7 out of the 24 respondents that reported trying study drugs reported still using them and almost all of those who still used them had a diagnosis (5/7). This implicates that the current prevalence of non-prescription CED use is 1,8 % (N=2). Half of the respondents (N=12) that had tried using CED's reported using them less than once semester with 5 respondents reporting using once a semester. 4 respondents reported daily use and all of them

were diagnosed with ADD/ADHD. This indicates that most of the students who have tried CED's without a prescription have not done this often and have not continued their use.

4.5 Diagnosis, distribution and access

There were overall 15 students that reported having a diagnosis of some kind but 6 of them were not prescribed with medication for their condition. 3 out of the 9 diagnosed students who had been prescribed medication for their condition reported that they had distributed their prescription medication to other people. Over half of the students that had tried CED's (N=13) were given or sold them by their friends or relatives. 1 undiagnosed student reported getting them from online, one reported getting them while travelling and in one case the information was missing.

4.6 Views on ethics

When asked whether the use of study drugs is ethical 27% (N=30) of the survey respondents answered yes and the same amount of 27% (N=30) answered no. The majority (47%) said it depends on the situation. Most of the students who thought that the use of study drugs was ethical also knew people that have tried them (see table below).. The Pearson Chi-Square test gave a borderline significance of 0,077 but no strong association measured by the Chramer's V (0,077).

Quantitative Table 1: Views on ethics in relation to perceived prevalence

		Do you know people who have tried study drugs?		
		No	Yes	Total
Do you think using study drugs is ethical?	Depends on the situation	54,0% (27)	41,2% (26)	46,9%(53)
	No	30,0% (15)	23,8 % (15)	26,5% (30)
	Yes	16,0% (8)	35,0 % (22)	26,5% (30)
	Count	50	63	113
	% of Total	100,0%	100,0%	100,0%

Most of the students who thought that the use of study drugs was unethical had never tried them (see table below) as might be expected. However not everybody who had tried study drugs thought that their use was ethical. Although half of the students that had tried study drugs (N=12) also thought their use was ethical, almost the same amount (N=10) thought it dependent on the situation. Two respondents that had tried study drugs also thought that their use was unethical. These results were statistically significant with the Pearson Chi-Square giving the result of 0,006 but not strongly associated (Chramer's V= 0,006).

Quantitative Table 2: Views on ethics in relation to reported prevalence.

		Have you ever tried study drugs?		
		No	Yes	Total
Do you think using study drugs is ethical?	Depends on the situation	48,3 % (43)	41,7 % (10)	46,9% (53)
	No	31,5 % (28)	8,3 % (2)	26,5% (30)
	Yes	20,2 % (18)	50,0% (12)	26,5% (30)
	Count	89	24	113
	% of Total	100,0%	100,0 %	100,0%

In terms of gender differences on the views on ethics although the ratio of female respondents exceeded the males it seems that men are more inclined to think that the use of study drugs is ethical as almost half of the male respondents thought their use as ethical (N=15/33) and only 6 thought it was unethical. Measured on the Pearson Chi-Square the result is significant (0,014) but there is not a strong association between the variables measured by Chramer's V (0,014).

Quantitative table 3: views on ethics in relation to gender

		Female	Male	Total
Do you think using study drugs is ethical?	Depends on the situation	51,3% (41)	36,4% (12)	46,9% (53)
	No	30,0% (24)	18,2% (6)	26,5% (30)
	Yes	18,7% (15)	45,4% (15)	26,5% (30)
	Count	80	33	113
	% of total	100,0%	100,0%	100,0%

In summary almost half of the respondents thought that the ethicality of using of CED's depends on the situation. For further research it would be important to investigate in which situations do students perceive the use of CED's as ethical an in which they don't. The data suggests that students who know other people that have tried CED's are slightly more inclined to think their use as ethical. Students who consider them as unethical don't have personal experience of study drugs, although trying them doesn't guarantee viewing them as clearly ethical. Men are much more inclined to view CED's as ethical compared to women.

Chapter 5. Qualitative Results

5.1 Perceptions

The online survey gave information about the perceived and reported prevalence of CED use. This subchapter goes more in-depth on exploring how common university students perceive the use of CED's to be. As the effects of medicine relates to the perceptions people have about them (Whyte et al. 2002: 15) it also explores the experienced effects they had. These experiences are complemented by the reported effects and side-effects gathered by the open-ended questions of the survey. Finally the perceptions of future usage are also explored.

5.1.1 Prevalence

Students often misperceive the use of substances among peers as more typical than they really are (see for example Perkins et al. 1999; Perkins 2002). Also the perception that a lot of students are using CED's might make others feel forced to use them to keep up (Cakic 2009). According to Carrol et al. (2006: 484) students that don't use non-prescribed stimulants but have peers that do, have a higher risk for using non-prescription stimulants in the future. As mentioned above 56% of the survey respondents knew someone who had tried study drugs and most of the reported users knew other people that had tried them.

Common as coffee or just between friends?

Cecilia (D3) was diagnosed with ADD about 4 years ago and prescribed with Ritalin. When asked if she thinks that the use of Ritalin is common she said *"It's pretty common. If you were to stand outside the library, the central library, here on the Singel and just engage in a conversation with some random students and ask them about it, chances are that at least half of them have tried or can get their hands on it. And I think the other half is just using Red Bull. Or all of them are using something to study with."* Brian (D2), who has been diagnosed with ADHD as an adult but don't believe in the diagnosis, also thinks that *"Ritalin is now everywhere. I heard if you go to the university library when finals you see so many people on drugs."* Brian says 80 % of friends have tried some sort of drug for studying and he thinks their use is increasing: *"Because I know there's is like market for it. Like that was like 6 years ago and now it's getting even bigger and bigger."* He also speculated that non-prescription use has simply turned into prescription use: *"So I think the illegal thing went away and now it's legal because a lot of people get diagnosed."* Brian also thought that the use of benzodiazepine substance Oxazepam is also commonly used in combination with Ritalin: *"I also think that's (oxazepam) the thing that's coming up. Cause people know that you can combine it, it's even better and it's like yeah. And Oxazepam is also everywhere, it's very cheap."*

There is empirical evidence that the consumption of prescription ADHD medication increased in the Netherlands between 2001 and 2006 (Van den Ban et al. 2010) so the perception of the increased prevalence could be seen as a reflecting this. In the case of benzodiazepines two survey respondents did have benzodiazepines prescribed to them but they had not distributed them. The non-prescription use of sedatives would require an investigation of its own.⁶

The perception that the use of CED's was common was not shared by some of the other informants. Frank (D6) who was recently diagnosed with ADD and prescribed with Ritalin didn't think that the use of CED's was common at all in the broader student population: *"Maybe 10 %. That would be a figure based on nothing, purely my own observation and I know myself I have very skewed view of the student population because I hang out with people that have the same interests, so most friends I know they all took it at least once or twice, they all took Ritalin once or twice, they took amphetamine once or twice."* He did estimate that around 40 of his friends have used amphetamine to finish up a paper and some of them are also experimenting with Modafinil and Ritalin.

In Franks opinion the use of CED's and other drugs is shared by people with the same interests. Some informants had not encountered students using CED's outside their own social group that they knew had tried them. Henry (UD8) who has tried Ritalin and Concerta without a prescription (about 50 times in the last 9 years) knows approximately 3 or 4 people in his class who have used Ritalin for studying. When asked whether he had noticed the phenomenon of CED use in the university he thought that *"No not at all. I think it's a very small thing and the people, my friends who use it they don't talk too much about it."* Also Emilia (UD5) who tried Modafinil once and knows about 5 friends who have tried it too doesn't know people using it part from that friend circle: *"Just this part, this group of my friends but otherwise no I've never heard anyone using it."*

Personal drug use whether it is legal or illegal is a topic that people rarely discuss publicly. It is something that could be shared with close friends who have similar interests. This suggests that the use of CED's is connected to the social group one is in and in habermasian terms regulates the membership of the social group. The informants in general estimated that the

⁶ See Haafkens' (1997) study about women's tranquilizer use in the Netherlands; also Medawar & Hardon 2004

use of CED's is something that only a minority of students have tried or are interested in. Bella (UD2) who tried Ritalin once before an exam knows friends who use it recreationally. She also thinks that their use is connected to polydrug use: *"I think it's more of a thing that people that already do a lot of drugs, use. Like the only people I know use it on a regular basis also use a lot of ecstasy and weed and it might be because they have easier access."*

One informant reported having friends who previously used amphetamines while working night-shifts in bars and kitchens but now preferred taking Ritalin. The reasons for this "switch" included according to her the method of using it (swallowing a pill instead of snorting), the more legitimate status of Ritalin compared to other amphetamines and its higher availability. The use of CED's according to her is not restricted to the student population but also appears in the labor market. In survey conducted by Van den Ende et al (2010: 22) about non-medical use of ADHD medication 35% of the respondents worked full time and 19% part-time. This seems to be so inside of academia as well; an informal poll among the readers of the scientific journal Nature found that of the 1400 respondents from 60 countries 20 % had tried CED's for non-medical purposes (Maher 2008). Frank who had about 40 friends who had experimented with amphetamines and CED's also knew people in the university staff that use substances for their work: *"I know a couple of teachers in the university, I know some professors. Of course I can't give you any names but yes there's a couple of them that I have a very good personal contact with and that told me they do this. Usually it's amphetamine. I know one that uses Kratom⁷. I know that he told me that one of his colleagues uses Kratom as well. And I know one teacher that uses cocaine to finish his writing, usually his conclusion."* This suggests that the use of CED's and other substances that are used as an enhancement is not restricted to the student population.

All of the informants that were included in the analysis (N=14) knew other people who had tried CED's without a prescription. Most of the reported users in the survey data also knew other people that had tried study drugs suggesting they are a social activity (Rozenbroek & Rothstein 2011) or at least the users share their experiences with others. The perception of prevalence of students using CED's however had a lot of variation among the interviewees. While others thought that the use of CED's was common in the university in an increasing way, others had not encountered them outside their social group that had experiences with

⁷ Kratom is a psychoactive herb sold in 'smart shops'

CED and other drug use. Most of the informants both diagnosed and undiagnosed reported having tried other drugs, mostly amphetamines and other stimulants and experiences with other drugs might be a factor that influence the prevalence of CED use in general. According to McCabe and Teter (2007) non-prescription drug users are more likely compared to other drug users to report polydrug use. The informants also expressed that the prevalence of using CED's is not restricted to the student population. Further research would be vital to fully grasp the prevalence of CED use not only in the student population and academia but also other areas of the society in the Netherlands to see if they are affected by the pharmaceuticalisation of daily life (Fox & Ward 2008).

5.1.2 Effects

In a review of laboratory controlled studies on the cognitive enhancement abilities of prescription stimulants (the studies concentrated on methylphenidate or dextroamphetamine) Smith & Farah (2011) found that results of the matter are mixed. Although they seemed to enhance learning, results on working memory, cognitive control and executive function were mild or non-existent. Individual characteristics, dosage and the task at hand are matters that should be taken into account as well as the possibility of the placebo-effect (Smith & Farah 2011; see also Repantis D. et al. 2010). The question how CED's work in real life settings should also be taken into account as according to Outram (2011: 9) "there is a considerable amount that we do not know concerning both motivation and self-evaluated efficacy in use; although we cannot discount the possibility that efficacious cognitive enhancement is being experienced by some individuals."

Enhancing cognition and more

The survey respondents reported both negative and positive effects of using study drugs; over half (N=13) of the students who had tried CED's reported always having positive effects and 9 reported having them sometimes. 6 survey respondents reported always having negative effects while 12 experienced them sometimes. The effects the survey respondents reported were mostly about increased concentration (See Table 1 below).

Qualitative Table 1. Reported effects of using study drugs from the survey data.

Effects
<ul style="list-style-type: none">• I didn't feel that much, except from being distracted less easily.• Geeked up, as they say here. which means full of energy. like tweeking.• I could study for 6 hours in a row, and when the university library closed I continued at home because I could concentrate so well.• It makes me less tired and more focused.• Enhanced concentration• Better concentration (translated from Dutch)• Alert, a lot of concentration and not easily distracted.• The urge to know everything in smallest detail without getting tired of studying or distracted by anything.• Everything in my head becomes clear, because usually everything is a mess. I can concentrate for an hour instead of 60 minutes and I'm less hungry/tired all the time.• More at ease, less distracted. Didn't have the need to check my phone every 10 minutes.• Keeps you awake and focused, but kills you in the end• Ritalin made me very slow and unable to concentrate. Cannabis on the other hand creates a state of hyperconcentration (which is more common amongst ADHD'ers). So it helps me sit still and read and helps me when writing essays. When in a state of hyperconcentration I write 2000 words in an afternoon easily.• It made my heart race and my body feel warm but it was able to keep me up later.• Dependent on Drug. Modifinil, provided a dullness of mind that is useful for studying long periods of time (because you wouldn't think of other things). The effect of the Racetam family of drugs was rather subtle, but gave me very noticeably better memory for dreams and also brought back memories from years ago (but fairly randomly).• They made me less distractible, made it easier to hold onto complex concepts without "losing my train of thought."• I definitely became more focused on writing and didn't think as much about going to Facebook, checking other websites, etc.• I felt like I could organize my thoughts better, I could focus on one thing without getting distracted for a very long time, I was jittery, less emotional, not hungry, not tired• Ritalin gives focus, but gives me a too narrow focus and increases anxiety. Noopept helps decrease the narrow focus but alone it does only work a little, higher doses makes my irritable and decrease concentration. I use a low dose of diazepam to counter the anxiety effects. I now only use them in low doses in conjunction, but they fuck up my stomach so only rarely.• More concentrated, quieter in the head, better working memory, less impulsive (translated from Dutch)• I can concentrate better, read better, study longer, remember more (translated from Dutch)• Relaxation, calming down, increased focus, more clear head more positive approach to studying, feeling more laid back which makes opening the study book less hard. • They make me want to dance and stop feelings such as hunger.• Crazy energy when you sniff it! And happy feelings

Most of the undiagnosed students that were interviewed found the effects of the CED's they tried to be mild or not beneficial. With Ritalin improved concentration and 'being awake' was something that many of the undiagnosed informants were expecting as an effect often without any results. Fiona (UD6) tried Ritalin once before an exam and did not experience any effects. When asked what she expected to feel she replied "*I expected to be a lot more concentrated and focused and awake.*" Gabriel (UD7) had tried Modafinil, Piracetam, Oxiracetam and Aniracetam to get better grades and improve memory. He ordered them online while studying in the UK and experienced wakefulness and more focus with Modafinil and mildly improved memory. Although they seemed to have an effect they didn't help to get better grades:

"Yeah it's difficult like it I guess it kind of worked. It's strange because the periods that I was taking, like doing cognitive enhancement or nootropics or whatever they were the period well especially when I was doing Modafinil it was I got like the worst sort of grades. I think it was highly because you can focus really well but most of the time I was on it I just worried I was going to die you know because there's a lots of stuff about Modafinil and getting like all sorts of crazy skin diseases and I didn't really enjoy that."

The undesired effects like the ones Gabriel experienced will be discussed below. Henry who had tried study drugs several times in the last 9 years did experience improved and longer lasting concentration when using Ritalin and Concerta without any harmful effects. He also acknowledged the importance of the placebo-effect: "*That's also why I sometimes just take a quarter or a crumble of it just because I know I will think that it does work but it's not even because of the pill it's just my head that thinks it works. But that's enough sometimes.*" The first time Diane (UD4) tried Ritalin that she got from a classmate with a diagnosis she used half a pill and did not experience any effects. Second time she tried a whole one, again with no effects. Although she did not have a physical effect, the pill worked as a motivational aid: "*I guess one thing I felt was just that, I felt like now that I took a pill I should study. It was more like a motivation for myself than it was actual physical effect. So it was more like oh my god I'm going to take a pill to so I better study.*" In addition to using CED's as a cognitive enhancers, Vrecko (2013) has argued for the importance of emotions in the experiences of students using stimulants to improve their academic performance. For instance Brian expressed getting positive emotional experience and motivation from the substances he used: "*it is a good feeling when you wake up you take your pill, you do a coffee. And you're sometimes a little bit high in the morning. It feels like ecstasy, like when ecstasy hits in. It's a good feeling. And I did a little of meth with my thesis for my bachelors. And it's great because you're so into it.*"

Using prescription drugs as an 'motivational aid' was also reported among the diagnosed students in addition to getting more focused with them. Dana (D4) was diagnosed with day-time-sleepiness about two years ago. She was first prescribed with Ritalin and afterwards Modafinil. She described how the effect helps her to go through moments when there seems to be too a lot of work to be done:

"Umm no I think the main thing that I found was sometimes you get to this point when you physically don't feel up to work or you feel sleepy or you feel disgusted or whatever and then there's so much work piling up so you start to get to this panic mode like "I will never ever be able to do this" and it feels like you have so much work to do and then you take it and in a couple of hours you're like "I'm done, I'm finished" you know. And I don't even notice how it happened but it's just... You're so concentrated and so focused that it goes so well."

In this regard the medicine is seen as empowering the user to manage his or her physiological symptoms and offering him or her "means of control" (Whyte et al. 2002: 15). This is evident for the diagnosed students and the effects that they prescribed. For example Amelia (D1) was diagnosed with ADD at the age of 12, later diagnosed with ADHD. She has used prescription medication (Ritalin and Concerta) more often since the age of 15, before that she didn't like the side-effects which included loss of appetite and depression. However she sees that *"For me it works like I feel, normally I'm just a little bit, well very chaotic really. Not only in my behavior but also in my head. When I use Ritalin it's just gone."* In a similar way Eric (D5) who was diagnosed with ADHD about 2 years ago and prescribed with Ritalin sees that *"Like my mind was first very chaotic, then I used Ritalin and it was more order and just nice and then after 4 months I stopped using it again but then the order didn't go away immediately."* For the diagnosed students the use of medication is seen as giving the mind 'more order', a state that the informants see as positive compared to the chaotic mindset that occurs sometimes without the drugs. As Whyte et al (2002: 50 - 62) observed when analysing Joke Haafkens (1997) case study about Dutch women who were prescribed with benzodiazepines, that although the medicine can be viewed in terms of medicalisation (or pharmaceuticalisation) as medicalised social control, the women also gained control of their own lives through the medication. In this sense the positive effects that some of students experienced from CED's can be seen as a result of using pharmaceutical enhancement technologies of the self that offers them control over themselves and not in terms of a societal pharmaceutical intervention. The experienced effects of CED's however were not always positive.

“Felt like a zombie on concerta”: undesired effects

Lot of literature surrounding the use of CED’s has concentrated on their benefits although recognising possible risks involved. The actual negative effects have often been neglected. Many of the survey respondents reported side-effects as can be seen in table 2 below.

Qualitative Table 2. Reported side-effects of using study drugs from the survey data.

Side-effects
<ul style="list-style-type: none">• I couldn't sleep that night, which kinda put me off ritalin.• Felt like a zombie on concerta.• I wasn't hungry and felt in a hurry/stressed.• Palpitations, restless feeling.• Nervosity (once)• I forgot to eat.• Agitation (Gejaagdheid).• Complete loss of appetite, very tired when the affects wore off.• Once distracted, it's hard to get back on track. Also you have to make sure you don't go learning things you don't need to.• Tremor, palpations, sweating excessively, alcohol tolerance, personality changes (I became very indifferent and/or easily agitated).• Tired• Concerning ritalin it made me very slow and dopy. I had to really think when someone asked how I was doing f.i. And the exam itself didn't go to well so I concluded not to use it anymore. Cannabis just gives you the munchies...• I didnt sleep well and even when i tried my heart raced too much that i couldnt relax my body until hours later when it all wore off• I found that the Racetam drugs gave me myoclonic twitches a lot and increased my heart-rate (not great for when you're trying to sleep). With Modifinil I found my body becoming more itchy. Considering the sometimes reported side-effect of Stevens-Johnson syndrome, I didn't continue using it for long. I also had heart palpitations for a while, but I'm unsure if this is due to the drug.• Stoned, palpitations, agitated feeling, couldn't sleep, felt like had used speed/mdma, problems with alcohol drinking, feelings of angst, aggression, headache. Everything the result of methylpenidate. (translated from Dutch)• I was a bit blunt (botter), less cheerful. So mainly emotional effects (tranlated from Dutch)• When I first took them, I didn't realize that you have to take them with food, never on an empty stomach. So I suffered a bit of stomach pain for a little while, until I asked my pharmacist if he knew why that might happen.• After doing them for more than one day at a time I would feel exhausted once off of them, I did not eat or sleep for too long at a time, I would feel sort of depressed after coming off of them

Most of the side-effects reported by the survey respondents had to do with lack of appetite and sleeplessness. Some side-effects however seemed to be more emotional: feelings of increased agitation and nervousness (see Aikins 2011: 567). The negative experiences of students using CED’s is also a matter of importance. For example even though Amelia felt that using ADHD medication worked for her she had also experienced side-effects from

them: *"it's yeah when the effect is getting less and then I feel like I lose control and that side-effect I don't like either. When it wears out."* This was also the case with Cecilia who decided to stop using Ritalin because she did not find it helpful and experienced adverse side-effects. These adverse effects could influence the willingness of the diagnosed students to divert their medication to their peers.

In a few cases with the undiagnosed students the effects were also adverse. Corinne (UD3) had tried Concerta and Ritalin approximately 10 times and often felt distracted after the medicine wore off. Anna (UD1) tried Ritalin once before her finals. When asked about the effects she described them as follows: *"I just got really anxious and nervous and uptight and like little paranoid and just unease, like it was just a horrible feeling and I was just sitting it through waiting for it to be over. And I couldn't concentrate at all..."*

As the use of CED's seems to be practiced by a small number of students providing information about the possible side-effects of CED's is important to improve their safe use. The undiagnosed students expected to be able to improve their concentration with CED's often without any results. The actual effects of CED's, when positive, are seen as giving the users means of controlling their selves by using pharmaceutical enhancement technologies. The negative effects however should be taken into account too as they might influence in the case of the diagnosed students to their willingness to distribute their medication and in general cause harm to the health of their users.

5.1.3 Future views

Non-prescription use

Vervaeke et al (2007) found that in the case of ecstasy, intention to use was a strong predictor for future use even for people that had not tried ecstasy before. The undiagnosed students interviewed had already passed the phase of intended use to actual use of CED's. However the experienced effects can be said to influence the potential future usage of CED's. Anna's experience with Ritalin was negative so she did not see herself using it in the future. Henry who experienced improved concentration said that he will continue their use although not often but possibly even after graduation. Most of the undiagnosed students said that if they were under academic pressure and they were offered CED's they might try them again. For instance Gabriel thought that *"maybe if I had a lot of work to do and a lot of sort of boring repetitive work and someone said I got some Modafinil do you want one if I was feeling really like I need some sort of help I could potentially do it."* Bella who had tried Ritalin once for studying thought that if the drug had worked better she might use it more often. Later she did report trying Ritalin again for studying, this time with more positive effects.

Fiona said that she is not planning on trying Ritalin again but she had purchased Ginkgo Biloba and prefers it because it is more natural.

As the experience of actual effects that most of the undiagnosed students felt were not considered beneficial they did not see themselves actively using them in the future. However if they would feel to be under academic pressure and offered CED's they might try them again. This implies certain *situationality* in terms of their possible future use; if the situation demanded and access to the substance was offered intended use might again turn to actual use.

Prescription use

As mentioned in the previous subchapter one of the diagnosed students had stopped taking Ritalin as she did not find it useful. The other diagnosed students reported that they would continue their use when needed but they all had reservations regarding their use. Brian was worried about their long-term effects: “... *after like 6 years of taking them, I don't know there are some side-effects. Yeah I've been very skinny too because of the drugs.*” Dana was trying to avoid using her prescription drug (Modafinil) by paying more attention to her lifestyle. One of the reasons for doing this was the negative feeling of being dependent on the medicine: “*when I got the prescription it sounded great but then you're all like shit I HAVE to take it, it's not a choice now. So I kind of hope it would have remained a choice.*” These negative feelings of being or becoming dependent on the medication was something that was expressed by the diagnosed students. Eric has a system of off and on periods to avoid becoming dependent on his medication: “*I first used it for 4 months and I stopped using it because I didn't want to be dependent on it. I wanted to have a feeling of security like I can also manage very well myself. So then I stopped for I think a month and actually felt great.*” He said he will stop using them eventually but now will continue their use as he finds them helpful. Frank who was recently diagnosed with ADD and prescribed with Ritalin also felt that other methods besides using drugs could be helpful to him and that these types of drugs shouldn't be used too regularly as it will decrease their effectiveness. He did however express interest “*in all the new stuff...yeah I feel like kind of football sticker collector you know `did you try this, did you try that´ and I consider myself some sort of guinea pig sometimes trying new stuff but umm there's probably limits to that as well. For now yes I'm going to keep trying it within limits of reasonability.* “

The other side of having more control through prescription medication as discussed in the previous chapter is the fear of becoming too dependent on it (see also Whyte et al 2002:56 – 57). The diagnosed students had various coping strategies to avoid feelings of dependence

while acknowledging that they will use them if needed. There is also similar kind of situationality in the future use of the diagnosed students as it was with the undiagnosed students with the difference that the access to the substance through the prescription when needed is more of matter of choice than chance.

5.2 Practices

This subchapter explores the practices around the distribution of CED's as well as the routes of accessing them. The main interest is the social relations involved: to whom are they given and from who are they received. The reasons and situations behind their use are also explored which are complemented by reported reasons from the survey data.

5.2.1 Distribution

All of the informants with a diagnosis were prescribed with Ritalin (6/6) (although one informant was later prescribed with Modafinil) and all of them had distributed their medication to their student colleagues. This is not surprising in this sample as that was one of the informant criteria. As mentioned in the quantitative results chapter, according to the survey data 3 out of 9 of the diagnosed students had distributed their prescription medication to other people. They all always knew the people they gave their medication to.

The people the interview informants distributed the pills were also close friends or classmates who received them often without any monetary compensation. Cecilia had stopped using her prescription medication (Ritalin) and sold them to 3 of her classmates and also given it for free to 5 others. The remaining Ritalin that she had she would sell or give away if she encountered people who would need it. The medication that the diagnosed students distributed were sometimes re-distributed. For example Amelia distributed her medication to 4 of her friends but she thought that *“they gave it to other people so I don't know how many really get it from me.”* This was also the case with two of the undiagnosed students who received Ritalin from a friend without a diagnosis who had received them from a friend with a diagnosis (see subchapter 5.2.2). Re-distribution is often ignored as a way of accessing CED's in the epidemiological literature of non-prescription drug use.

Compared to Ritalin, Modafinil appeared less often in the interviews. 4 of the 15 informants had tried Modafinil with or without a prescription. About 6 years ago Brian with two of his friends bought Modafinil online. One of the friends also travelled to India to get it. Each ordered 200 pills monthly for a short period of time and distributed them mostly to friends. When discussing about access to Modafinil nowadays Brian thought it is more difficult to purchase because of increased governmental regulation:

“Umm Modafinil is harder to get these days. Because the websites are closed down. The government, we noticed that there was police on the websites. We noticed that so much of them were fake and stuff. Because the guys I was with were really nerdy on the internet to be honest so they knew what they were doing. That was also good for us. Yeah I know it was safe because they checked IP-addresses and stuff. They could like trace them back and we set up things to order that we ordered in the end from a IP-address in Russia. That was crazy but umm these days Modafinil is really hard to get. It’s really stronger too. “

Dana had Modafinil prescribed to her as she was diagnosed with excessive day-time-sleepiness but she had only distributed her medication to one of her friends although she was approached by in her estimate 20 of her friends for her medication. The reasons for denying the requests varied:

“Yeah that is expensive and my insurance didn’t cover it because I had the basic insurance from my country so it was not covered. And I could only get you know a certain amount per certain time and I needed myself so that was the reason why I didn’t want to give it to other people. I was also kind of concerned you know it’s silly right you don’t need it.”

For future research it would be important to enquire how often diagnosed students are approached to distribute their medication and how willing they are to do that. The diagnosed students in general did not see their distribution as problematic (see also Aikins 2011: 568-569). The experienced effects of the prescription medications are an important factor to take into account as discussed in the chapter 5.1.2. One way of looking at the distribution of prescription medication to peers is non-compliance to the diagnosis although non-compliance often means taking the medication yourself in a way that is not in line with the instructions of the physician (e.g. Van der Geest et al. 1996: 165). Distributing medication to others is a socially active form of non-compliance and it also tells something about the social relations that are involved; medication is mainly distributed to friends not strangers. In Habermas’s terms distributing prescription medication regulates the membership of the social group.

5.2.2 Access to the substance(s)

Half of the students without a diagnosis (4/8) received the medication from their friends with a diagnosis, especially when the substances used were Ritalin or Concerta. This was the case for example for Diane: *“I got it from a classmate of mine who’s diagnosed with ADHD and so he had it and I mentioned that I wanted to try it once and he was like ‘Well I can give you one’.”* As mentioned above two of the undiagnosed informants received Ritalin from an undiagnosed friend who had got them from a person with a diagnosis. Only Henry had paid or traded for accessing CED’s from friends with a diagnosis:

“ I had a friend who didn’t want to take the pills himself so sometimes he gave them to me. Another friend who sold them to me like 5 euros the whole package. Yeah that kind of stuff. [...]I switched it for some weed because I don’t like weed and he likes it a lot and I had some so I gave him that and he gave me the pills. That kind of things. So always through friends not through the doctor.”

These findings are consistent with the current literature that the access to prescription stimulants happens mostly through friends (Poulin 2007; DuPont et al. 2008; Garnier et al. 2010) as over half of the survey respondents that had tried CED's (N=13) were also given or sold them by their friends or relatives. In the case of Modafinil access to the substance was accomplished via Internet. Gabriel who had tried Modafinil, Piracetam, Aniracetam and Oxiracetam ordered the substances online himself (while studying in the UK) and Emilia received Modafinil through a friend who had ordered them online.

There were also other ways to gain access to CED's among the interviewees besides through diagnosed friends and online. Fiona had purchased Gingko Bilboa that she was now using from a pharmacy. Henry had also tried Ephedra which he got from a trip to Spain.

Brian expressed getting the diagnosis not only because he suspected that he had ADHD but also to gain access to Ritalin in a legal way: *"Because nowadays also that was the reason I got myself diagnosed with ADHD also and I knew there's was something wrong with me but also if you fill in the test it's so easy to get them like legally. I knew I would get them like illegally but legally it's like crazy how easy it is to get them."* Amelia also thought that people can easily get a diagnosis if they wanted: *"... I think they should be more specific in the diagnosis of ADHD or ADD because now it's just too..almost everyone knows what kind of symptoms do you have to fake if you want to get the diagnosis.* In a study conducted by Carrol et al (2006) 44,3 % of the students knew peers that had received an ADHD diagnosis even though they didn't think they had ADHD.

The ways the students accessed the substances could be seen as non-traditional in which the access is not through a medical professional but through friends and the Internet. This emphasizes the active role of the users in gaining access to the substances. Sometimes the doctor is seen as 'merely a gatekeeper'(Whyte et al. 2002: 55) and it seems that some students are knowledgeable how to simulate symptoms in order to get the prescription (e.g. Harrison et al. 2007). From a public health perspective this is seen as a prescription drug abuse (see for example Outram 2011: 7 - 8) and it has created a new drug market of which the medical professionals have a limited control over. However looking at it from the point of view of the users gaining access to the substances through non-traditional ways is another example how they take control into their own hands in pursuit to use pharmaceutical enhancement technologies. And the users also have a variety of reasons to do so.

5.2.3 Reasons and situations of use

Reasons

The reasons for using CED's according to the open-ended questions of the survey data (see Qualitative Table 3) can be divided into 5 categories; enhancing study situations, for therapeutical purposes, recreational use, experimentation and multiple use.

Qualitative Table 3. Reported reasons of using study drugs from the survey data.

<p>Enhance study situations</p>	<ul style="list-style-type: none"> • I use it to have more energy and better concentration during studying. • To enhance concentration. • To understand physiology in less than 2 hours. • To improve concentration and length of consecutive study time. • To increase attention and thereby reach a more effective time-management. • I had to learn two tests in a very short amount of time. • Efficient studying, more learning in less time. • To be honest i used ritalin once for an exam because i hoped it would help me concentrate, it didn't work so I never tried it again. The thing is i have ADHD but don't use prescription drugs. I do smoke cannabis on a daily basis, which, when studying, helps me concentrate. • To improve concentration, so I could study for longer and to improve memory retention. • Increasing attention and focus. • I tried them for the first time in late March so I could concentrate on finishing an essay quickly after I felt like I didn't have enough time to write it naturally. • I use(d) study drugs to maintain direct focus for hours, and to stay up late without feeling tired in order to cram.
<p>Therapy</p>	<ul style="list-style-type: none"> • I have ADHD, so I use concerta daily. Whenever I need to study all day or I have a lot to do, I add Ritalin to that. • To cope with my ADHD (diagnosed), I think the diagnoses is wrong. Ritalin only works on a certain level and has much side-effects. I am still searching for something that works • To concentrate better, I have ADD duh. For adults it is AADD by the way. (translated from Dutch) • To reach a level of concentration that other people without ADHD have (translated from Dutch) • To relax during a period of stress so I can focus instead of freaking out.
<p>Recreation</p>	<ul style="list-style-type: none"> • I used Ritalin, not for studying but for dancing and partying. • To get energy at a party • On holiday, to party
<p>Experimentation</p>	<ul style="list-style-type: none"> • I only tried it once to see what it was like. • I used it once to try it out. • I was in the middle of finals week and had a lot to do in a short time. My friends were using drugs and I took one as well to try it out.
<p>Multiple</p>	<ul style="list-style-type: none"> • To stay up. party. study.

For the interview informants the reasons for using cognitive enhancement drugs varied although all of the undiagnosed informants had tried them in a study situation (see next subchapter). 3 out of 8 of the undiagnosed informants reported trying it also for recreational use. Reasons for using cognitive enhancement drugs included improving concentration and memory, getting better grades, being more creative, staying awake in class after a night out, managing time, working, travelling and in addition to recreational use also while doing sports. Users could have multiple reasons for using them. For example Brian said that:

“... we used it for working and for partying. So you go to a club until late and then you drove home sometimes. We took it to be awake in the car so you don't have car accidents. And we took it while raving to be like sharp and the next day you could still work. And we took it while studying. Enhancement actually for tests and stuff.”

Experimentation was something that the interviewees also expressed. The interest for experimenting came through the knowledge the informants had gained by studying neurological topics. For instance Gabriel tried Modafinil and Racetam type of drugs mainly to get better grades and improve memory but also *“because it's kind of related to psychology and you do a lot of stuff about memory and a lot of stuff about neurotransmitters and stuff so I think I was quite interested to...if I could sort of change it all.”* In a similar way Eric thought that *“because it changes you're consciousness slightly, suddenly, very suddenly and that's why I also like to use it sometimes because I'm like, as having studied some of the neuropathways myself I can sometimes be like 'oh yeah I can notice that' you can sort of...You read about it and then it's fun to have the experience yourself.”*

The variety of reasons for using CED's brings the social lives of pharmaceuticals to the surface. Although designed and prescribed for certain medically defined conditions, in the hands of the consumers they are attached with different meanings and reasonings. In this final stage of their lives (Van der Geest et al. 1996: 156) they are used for some purpose which in some cases as the ones above meant using pharmaceutical enhancement technologies to actualise neurological knowledge of the self.

Situations

The situations when the undiagnosed students tried CED's were often at a time when they felt that they were under academic pressure. For example Anna was offered Ritalin by a friend before her finals: *I had papers to write, to study, just a lot of stuff at the same time and I panicked and my friends told me to just use Ritalin and you'll be fine but I was worse.”* Bella also found herself in a situation where she hadn't been able to study for an exam efficiently:

“I was studying for an exam but I'd been really sick during that course so I missed a lot of class. And then I was really, well it wasn't going so well, the studying, and my friend was

like 'Oh I'm just going to take some Ritalin, do you want a half a pill?' and I was like alright sure umm why not and then I took it."

Also Gabriel reported using Modafinil when he felt he needed to study a lot: *"well if I had like a lot of stuff to revise I was going to be revising all day like I'd take like Modafinil in the morning and then you can revise."* DeSantis et al. (2008) also found that the use of non-prescription stimulants was used by students mainly while experiencing high academic stress and during finals. Similarly the diagnosed students who found the medication useful used it in situations when they felt that they had a lot of things to do and the drug would help them to go through it. Dana explained that she sometimes fell asleep at class and even though she had a doctor's note saying she did not do it on purpose the teachers did not like it:

"But some teachers really hated it so then I would know I'd have to wake up in the morning, ok I have hard class, I have to take the medicine and try to stay awake. And yeah driving...just some more important things.[...] But now at this point I don't have anything except for biking, like there's no situation in my life that would be really really badly affected by this so yeah it's ok whatever."

Also the situations when the diagnosed students were approached were often during times when their friends had to study a lot. For instance Amelia when asked how often people received the medication from her said that *"2 of the 4 just one time and the other ones practically always at study periods."* Cecilia had sold some of her Ritalin at the university but she said that she didn't sell it a lot: *"I usually just gave it to people who were complaining that they had to study all night."* Henry usually used them during exams because that was when his friend with a diagnosis usually had them with him: *"Yeah most often it is during exams but that's also because of the...in that period it's more available because a good friend of mine he always has it with him during that period so then he also gives some to me."*

As discussed in section 5.1.3 about the informants future views of using CED's their use involves situationality which entails that the drugs are used in situations when needed. The difference between the diagnosed students and the undiagnosed students was that the diagnosed students had easier access to the substances through their prescription and found them more often beneficial. The situations when the informants felt that they needed the substances were usually under academic pressure. This was also when the diagnosed students were often approached by other students in pursuit of their prescription medication and when accessing them was easier for the undiagnosed ones.

Table 4 presents short descriptions of the interviewees and summarizes some of the findings. The information is given in Group 1 (Table 4a, Undiagnosed) about 1) substance(s) used and for what purpose 2) experienced effects 3) access to substance(s) 4) perceptions of prevalence and 5) future usage. Short descriptions about Group 2 (Table 4b, Diagnosed) involves information about their 1) type of diagnosis 2) medication prescribed and 3) reports of distribution.

Qualitative Table 4a. Short descriptions of informants: Group 1

<p>Anna tried Ritalin once before her finals. Experienced feelings of anxiety and nervousness, no positive effects. Has tried Ritalin recreationally on 3 occasions. Received it from a friend with a diagnosis. Has also used amphetamine for study purposes. Says she knows a lot of people who take Ritalin for studying with or without the diagnosis. Thinks she will not use Ritalin again for study purposes in the future.</p>
<p>Bella tried Ritalin before an exam. Received it from an undiagnosed friend. Experienced mild improved focus. Knows friends who use it recreationally. Might use Ritalin again if offered. Later reported trying Ritalin again with more positive effects.</p>
<p>Corinne has tried Concerta and Ritalin approximately 10 times. Received it from 2 of her friends who have a diagnosis. Did not find it useful for studying although said focus improved mildly. Also used it for creative purposes and for recreation. Felt distracted after the medicine wore off. Knows approximately 7 friends who have used drugs for studying. Thinks she will not use it in the future.</p>
<p>Diane has tried Ritalin twice. First time used half a pill, did not experienced any effects so tried a whole one again with no effects. Received it from a friend at class who has a diagnosis.</p>
<p>Emilia tried Modafinil once. Received it from a friend who ordered them online. Used it after using other drugs the night before to stay awake at class. No strong effects. Knows approximately 5 friends who have tried it. Might use it in the future.</p>
<p>Fiona tried Ritalin once before an exam. Received it from friend without a diagnosis who received it from a person with a diagnosis. Did not experience any effects. Now using Ginkgo biloba to improve concentration while studying. Knows about 50 people in the United States that have used Ritalin for study purposes. Also knows that one classmate in Amsterdam who uses it without a diagnosis. Thinks she will not use Ritalin in the future, prefers Ginkgo because more natural.</p>
<p>Gabriel has tried Modafinil, Piracetam, Oxiracetam and Aniracetam to get better grades and improve memory. Ordered them online. Experienced wakefulness and more focus with Modafinil and better memory of at least dreams with the Racetams. Experienced anxiety about possible side-effects. Knows approximately 5 friends who have tried Modafinil although some of them thought they were taking Ritalin. Knows one who has tried Piracetam. Might use Modafinil in the future.</p>
<p>Henry has tried Ritalin and Concerta (about 50 times in the last 9 years) and also Ephedra, amphetamine and cocaine (once)for studying, doing sports and for recreation (about 5 times). Experienced improved and longer lasting concentration, no harmful effects. Received them from friends with diagnosis. Knows approximately 3 or 4 people in his class who use Ritalin for studying. Thinks he will continue their use in the future.</p>

Qualitative Table 4b. Short descriptions of informants: Group 2

<p>Amelia was diagnosed with ADD at the age of 12, later diagnosed with ADHD. Used medication more often since the age of 15, before that didn't like the side-effects which included lost of appetite and depression. Prescribed with Ritalin and Concerta. Distributed her medication to 4 of her close friends.</p>
<p>Brian was diagnosed with ADHD as an adult but don't believe in the diagnosis. Has used caffeine pills, Modafinil and Ritalin (now with prescription), Oxazepam and amphetamine for the purpose of studying. About 6 years ago with two friends bought Modafinil online. One of the friends also travelled to India to get it. Each ordered 200 pills monthly for a short period of time and distributed to mostly friends. Says 80 % of friends have tried some sort of drug for studying.</p>
<p>Cecilia was diagnosed with ADD about 4 years ago. Prescribed with Ritalin. Decided to stop using because didn't find helpful. Also had some side-effects. Sold her medication to 3 of her classmates and also gave to 5 others.</p>
<p>Dana was diagnosed with day-time-sleepiness about two years ago. First prescribed with Ritalin, afterwards Modafinil. More students have approached her to get her medication but only gave to one friend. Prescription limited, not covered by insurance and expensive so did not want to give it away. Used it regularly while studying although had some side-effects and did not want to become dependent on it.</p>
<p>Eric was diagnosed with ADHD about 2 years ago. Prescribed with Ritalin and finds it useful. Has a system of off and on periods. Has given his medication to approximately 5 of his friends. Also during a wintersport vacation gave medication to friends for recreational use.</p>
<p>Frank was recently diagnosed with ADD. Prescribed with Ritalin. Had used Ritalin before, also Adderal, amphetamine and LSD for study purposes. Estimates that around 40 of his friends have used amphetamine to finish a paper and some of them are also experimenting with Modafinil and Ritalin. Also knows a few university teachers and professors who use substances for their work. Will distribute medication if asked by close friends.</p>

5.3 Ethics

This section looks whether university students who have experience about CED's think that they should be available and whether they are considered cheating. Their views on policy regulation around their use is also enquired.

5.3.1 Freedom of use

In a study conducted by White et al. (2006) students indicated that prescription stimulants should be more available. Some bioethicists also argue that the use of cognitive enhancement drugs should be available for the public in a responsible way (see Greeley et al. 2008; Harris 2009) although arguments against their availability are also expressed (e.g. Chatterjee 2009). Thaler (2009) takes a stand that using cognitive enhancement should be a matter of free and informed choice: "Cognitive enhancing drugs intended for healthy people ought to be drugs of choice. Informed free will is the ethical, and should be the practical, basis for decisions regarding their use." Hesse (2010) takes a similar kind of stand arguing that public health

interventions should focus on the regulation of use and the reduction of harmful effects of substances but not to decide what aspects of human life should or should not be enhanced.

This view was also expressed by one of the informants with the addition that having the experience of trying CED's himself he did not see himself to be in a position to deny it from others: *"You know I can't, taking it myself and then you know say that other people are not allowed to take it. That would be ridiculous. (Gabriel)"* Unlike Gabriel and some of the bioethicist mentioned, most of the interviewees did not think that CED's should be available for the general public at least without regulations. Lack of knowledge about the side-effects both short-term and long-term and the potential for abusing the substances were the most often expressed arguments against their availability. For example Anna who had a negative experience with Ritalin had a strong opinion against the availability of Ritalin:

"I think it's a horrible horrible drug. I think it's horrible that they prescribe it for little children having ADHD or ADD or some kind of similar disorder. And umm I'd rather they provided just regular amphetamines than Ritalin."

Henry who did find the non-prescription use of ADHD medication useful was also against their availability: *"I'd say no because umm I think a lot of people don't know how harmful it is to them and I think they would, if they could get it for free yeah they would just use it too much, too often."*

Corinne also didn't think their use should be legal because people see it as a medicine and don't realise that it can be destructive: *"it's a chemical that you take and it has some effect on your brain so I think it should be really well regulated like it's now."* Unlike Corinne who felt that the substances already were well regulated some expressed that the drugs already were available for people who want to use them. For instance Amelia thought that *"On one side I think it should (be allowed) because now everyone can get it anyway. Everyone knows someone who can get it. But on the other side it's a drug. Some people take too much pills and some people use it when they don't have ecstasy or something."* She concluded that people shouldn't be allowed to purchase them freely from a pharmacy but on the contrary the current diagnosis criteria should be made more specific. She didn't however see distributing her own medication as problematic: *"I feel like why not? If I can get it and you can't so yeah you can get it from me."* Brian who had sold Modafinil to mainly friends had discussed about selling it in larger quantities but considered it to be unethical: *"we had a talk that we should sell more like do it bigger and but I said we shouldn't do it because it's unethical. I don't want to be a drug dealer."* These quotes suggests that the distribution of prescription

medicine is not seen problematic when they are given to friends. When the discussion about their availability and distribution is on the level of general public issues of safety and personal ethics emerge. As discussed earlier (see subchapter 5.2.1) the willingness of diagnosed students to distribute their medication should be investigated more thoroughly.

Many informants had doubts about the public's ability to be aware of the risks involved or believed that their availability would lead to their abuse. In other words issue of safety was the main argument against their availability. Were the informants themselves aware of the risks involved and based their decision to use them on their 'informed free will' (Thaler 2009)? All of the undiagnosed informants had gained information about the drugs before taking them either through their own studies, online or through their friends or relatives who had experience of them. Also the diagnosed students provided information about the risks involved when they distributed their medication so in that respect they were taken according to their own informed will. None of the undiagnosed students reported that they somehow felt coerced to use them but as the situations when the undiagnosed students used CED's were under academic pressure this does raise questions about how free that decision actually was.

A few informants suggested that if people were interested in using prescription cognitive enhancers and found them useful, they should discuss their use with their doctors which would help them to make a more informed decision. There has been studies looking into what the views and attitudes of physicians are towards prescribing pharmaceuticals for enhancement purposes (e.g. Bergström & Lynöe 2008; Hotze et al. 2011) but this should be researched more specifically in the context of Dutch GP's. According to one of my informants some doctors might be willing to prescribe CED's:

"I know that there's is a couple of psychiatrists and doctors that if you say honestly like I would like to try this and usually you should say I'm going to try this and I could either try it with your support and you can give me a lot of information and maybe you can prescribe it to me, maybe just prescribe me a very low dose, I could use it a couple of times and that's it. And I know that many doctors and psychiatrists are willing to help especially if they know you and if you're honest to them. "

As the gatekeepers of prescription medication doctors play an important role when it comes to the availability of CED's. The non-prescription use of CED's has created a pharmaceutical market that is outside the control of the medical professionals (Williams et al. 2011). Even if one would argue against the use of pharmaceuticals for enhancement purposes and even though as their use is practiced by so far a small amount of healthy students it would still be important that their use occurs in the safest way possible. Providing information about the

possible side-effects that also a number of the users according to this research have experienced (see subchapter 5.1.2) is seen as important in this respect.

5.3.2 Fairness of use

In the Student' Charter (2010 - 2011: 9) of the University of Amsterdam the only restricted substance is tobacco. If no regulation exists about the use of CED's is their use then academically fair? Of course legal regulations do already exist. However most of the informants did not consider the use of CED's as cheating mainly because they did not see the effects to be big enough to give people an unfair advantage and because using pharmaceuticals is not the only thing that creates an unfair playing field. The matter of availability of the drugs as discussed in the previous chapter was seen as interrelated and having an effect on the fairness of using CED's. Emilia didn't see their use to be unfair partly because of the effects but also because of its availability:

“No I don't see it that way. Doping has a bit of different effect I think, a bit stronger, stronger effect. So no, it's all up to you I think. I mean there's some people who have better background or a better laptop anyways. The world is not that fair in general so. And if I can get it, I think anybody can get it.”

Other issues raised by the informants about the fairness of using CED's in an academic setting were about academic integrity, the definition of doping and whether the environment of academia is considered competitive or not. For instance Bella saw that the performance of others did not affect her own and there for in a non-competitive environment the use of CED's would not be considered doping:

“It's weird cause in a way it's doping but I think the difference is that it's not doping because you're not competing against other people you're just competing against yourself. And with doping it gives you an unfair advantage towards other people but this is just for you getting a better grade. I mean if I get a 7 and somebody else gets an 8 it doesn't affect me. But in cycling it does have an effect. So in that way it's not doping.”

Frank on the other hand saw that students used substances as a direct result of the competitiveness of academia. He saw that within the “*discourse of competition of course study drugs are going to be considered doping.*” He however did not consider their use as cheating but more as a tool:

“I consider it maybe a more expensive paint for a painter or the more expensive equipment for the artist or the muse for someone or a very good teacher that I mean if you have a very good teacher and a life-coach of course you're going to write better stuff because you have people that really yeah help you.”

The discussion about the fairness of using CED's should take into account other dimensions that affect their fair use. These dimensions are for example the actual effects, availability, perceived competitiveness and other enhancement technologies that are used to create an

uneven playing field. As one of the informants pointed out that “*you already have like differences in societies that makes that other people can perform much better. Maybe those are like the superpills you know, the layers of society.*” Concentrating on the fairness of enhancing the self using pharmaceutical technologies obscures the other dimensions, or ‘the layers of the society’ which are also at play when discussing whether the use of CED’s is fair or not. As another informant pointed out “*somehow as a culture we drew a line between those things we ingest and those things we do to our bodies.*” The transformative power of medicine (Whyte et al. 2002) to enhance our cognitive abilities is important but not the only way to improve ourselves or make us ‘better than well’ (Elliot 2003). Goodman (2010: 150) offers two approaches universities could implement to make the use of CED’s fair:

“Academic institutions could follow the model of sports leagues and explicitly ban enhancers for students enrolled in competitive courses or taking competitive exams; they could even institute random drug testing. At the other extreme, they could follow the lead of ethicists like Allen Buchanan, who compare the use of CEDs to the use of calculators on math exams. On that reasoning, professors might make cognitive enhancement an explicit course expectation and even distribute CEDs before exams, or professors might permit CEDs without distributing them.”

It is to these and similar kinds of views on regulating the use of CED’s with academic policy that we now turn to.

5.3.3 Views on Regulation through Academic Policy

Linton (2012) sees that especially in the context of medical and law schools which have unique ethical frameworks the use of CED’s should be considered academic cheating and their use should be explicitly prohibited by university administrators and organisations.

Cakic on the other hand (2009: 613) sees that “any attempt to prohibit the use of nootropics will probably be difficult or inordinately expensive to police effectively.” Most of the students interviewed also expressed doubts about the universities ability to practically monitor and/or prohibit the use of CED’s. For instance Bella thought the university should keep the status quo:

“ ...I don’t think the university should take a stand, it doesn’t really change anything. I mean students will always be students, they’ll just use drugs and they’re still bit of teenagers sometimes. So yeah, maybe if you get a blood test then ok they’ll stop using it before the exams but that’s too much of a hassle, cost too much money and frankly because it didn’t give that much of an effect for me I’m just like I don’t think it gives that much of an unfair advantage but that’s because it didn’t do that much for me. So I think it’s going pretty alright as it is.”

In a similar way to the fairness of the use of CED’s the matter of actual effects can be seen as also influencing the views regarding to policy regulations.

Even though Henry had used CED's several times and found them useful he wished that the university would offer more information about CED's: *"Some professors who've done research on the subject and then would tell of the harmful effects and what is good about them. And it would be better for us to know how to use it[...]That would be a lot better because now I'm just doing something that I'm not sure whether it really is really good."* Eric on the other hand thought that making explicit statements against CED's would only lead to their increased use: *"I think it's a minority now and if you explicitly say like 'we are against mind-amphetamines like [...]brain stimulants' then I think many students who are not using it now maybe think like 'what is everybody around me using stimulants?'"*

The hypothetical steps to stop students using CED's with university policies does seem unpractical. The university should first of all define the use of CED's as cheating and unethical which was not the impression of most of the students interviewed. Even if the university would explicitly prohibit the use of CED's how would it monitor that they were not used? Making explicit statements against CED's could also lead to their increased use which in turn might influence their ethical acceptability. The more students know other students who use cognitive enhancers the more they are inclined to think their use as a norm and overestimations about their prevalence might generate more use (Outram & Stewart 2013: 798). For further research it would be interesting to investigate in which situations do students and academical staff perceive the use of CED's as ethical an in which they don't. This research has given preliminary findings on the topic. The next chapter draws together the results found from the different chapters.

Chapter 6. Discussion of Results

This research set out to explore the perceptions, practices and ethics of cognitive enhancement drugs among university students in Amsterdam using both quantitative and qualitative methods. This chapter provides first of all a summary of the results which are discussed in reference to some of the current literature. Second part of this chapter is concentrated and reflects the more theoretical aspects and concepts used in this research.

6.1 Empirical findings

Over half of the survey respondents (56%, N=63) knew someone who had tried study drugs. All of the interviewed informants and most of the reported users in the survey also knew someone who had used CED's without a prescription but the perception of the prevalence varied; others thought it was "common" while others hadn't encountered it outside their social group. Some expressed that especially the use of Ritalin has increased in recent years. Ritalin was the most common CED both in the survey data and among the interviewed informants. A factor that might influence CED use is experiences with substances as most of the students interviewed reported trying other drugs. Van den Ende et al (2010) also found that ADHD medication was often used in combination with other substances.

Despite the perception that the use of CED's is common among university students, the use of CED's seems to be practised by a small number of students and not in a frequent and continuous manner. According to the survey results the life-time prevalence of non-prescription CED use was 12% (N=14). Most of the respondents who had tried them had not used them often and had discontinued their use suggesting that actual prevalence rate for non-prescription CED use is 1,8% (N=2). Almost all of the interviewed students that had tried CED's without a prescription found the effects to be mild and not beneficial so they also had used them rarely. The situations in which the undiagnosed students had tried CED's were while they were under academic pressure and if they felt to be under academic pressure in the future and were offered CED's they might try them again. Infrequent use seems to be the most common pattern of use according to the current literature (Smith & Farrah 2011: 723). As mentioned in the analysis there is certain kind of situationality in the (future) use of CED's for both diagnosed and undiagnosed students; the drugs are seen as providing if not a solution but support to manage challenging situations. This problem-management with pharmaceuticals is seen as possibly causing dependence and the diagnosed students used different strategies to avoid it.

One undiagnosed student did find the use of CED's helpful to improve his concentration while studying which was also often reported purpose and effect according to the survey data

for the people that had tried CED's. Other reasons for using CED's included experimentation, being more creative, staying awake after a night out, recreational use, managing time, working, travelling, doing sports and for therapeutical purposes. This implies that these substances are not used only to enhance *cognition* and that the role of emotions (Vrecko 2013) and using substances as a motivational aid shows the limitations of perceiving the reasons for their use as merely cognitive enhancers. However the positive effects mainly had to do with improved cognition; being more concentrated and less distracted while studying. CED's also do not always *enhance* the users but instead cause negative effects. A number of respondents from the survey data reported negative effects, which were mostly loss of appetite and sleeplessness (see also Van den Ende et al. 2010: 25; 36 - 37) but also negative emotional effects. A few undiagnosed student interviewees had also experienced adverse effects when trying CED's and a number of diagnosed students also reported undesirable effects which might influence their willingness to distribute their prescription medication.

Only a few diagnosed students had distributed their medication to people they knew in the survey sample. The interviewed students distributed their medication to friends and classmates but not in large quantities. One informant had purchased Modafinil online with friends to use and distribute it in a larger scale but this had stopped partly as a result of increased governmental intervention. According to the survey data the undiagnosed students received the substances mostly from friends and relatives. This was also the case with most of the interviewed undiagnosed students. These findings are consistent with the current literature on the diversion of prescription medication (Poulin 2007; DuPont et al. 2008; Garnier et al. 2010). Re-distribution should however also be taken into consideration when enquiring routes of access to CED's. Distributing medication is seen as social form of non-compliance which communicates the social relation of the individuals involved.

Almost half of the survey respondents thought that the ethicality of using study drugs depends on the situation. There are variety of dimensions that should be taken into account when discussing the fairness of using CED's which are among other things the actual effects and availability, perceived competitiveness and other enhancement technologies that are used to create an uneven playing field. Greely et al (2008: 702) argue that CED's as well as other enhancement technologies "should be viewed in the same general category as education, good health habits, and information technology — ways that our uniquely innovative species tries to improve itself." As the effects of the CED's were seen to be mild their use was not considered cheating in an academic setting by the interviewed students. However they did not think that CED's should be available without regulations as the side-effects for both short-

term and long-term use were not known by the public. Nevertheless some expressed that they already were available for people either through friends or through prescription and this also affects the fairness of their use; if they already are available for everybody to use, then the decision to do so could be seen as a case of informed free will (Thaler 2009). Free in a way that none of the undiagnosed students expressed feeling coerced to use them although the situations were often under academic pressure. The decision was informed as all of the undiagnosed informants reported that they had information about the drugs before taking them and the diagnosed students also provided information about the risks involved to the people they distributed their medication. According to Forlini and Racine (2009b) using CED's is seen as a personal choice by different stakeholders while also recognizing the social pressures to do so.

Most of the students interviewed expressed doubts about the university's possibilities to control the use of CED's through policy. Although information should be provided about their safe use, providing information and making explicit statements against their use might trigger their increased use. The possibilities of policy regulation to impact the use of non-prescription CED's and whether their use will increase in the future because of or in spite of policy attempts are still matters of speculation. The use of CED's according to this research is already happening among a small minority of academic youth in Amsterdam and their use requires discussion in- and outside of academia.

6.2 Theoretical framing

Looking through the Habermasian culture aspect of the lifeworld the university culture can be seen as another area of pharmaceuticalisation of everyday life with connections to the more general drug culture experienced and perceived personally by a small minority of 'users' and 'providers' but also reflecting the knowledge of a larger social group of 'peers' who are aware of the practice. The practices themselves involve on a social group level the interchanging of knowledge between users and providers and the provision of pharmaceutical enhancement technologies by the latter to the former. In terms of Habermas's aspect of society this communicates the memberships of the social group as the practices are seen as ethical only inside the group. The different practices also show the social lives of medicine and creates a pharmaceutical market that is not fully controlled by the traditional cultural authority on medicine use, the medical professionals. In this sense "consumerism is an important driver of pharmaceuticalisation, with or without the aid of professional input or industry influence" (Williams et al. 2011: 717).

On an individual level, as the self is seen increasingly in neurochemical terms, the use of pharmaceutical enhancement technologies provides the self for instance more control, improved cognition and actualisation of neurological knowledge of the self. Instead of seeing the use of pharmaceutical enhancers as societal pharmaceutical intervention this emphasizes the active role of the individual. The ways the users access these technologies through social memberships and modern communication technologies further emphasizes this point. This does not mean that the process of pharmaceuticalisation does not play a role or that the individual can freely practice this pharmaceutical self-enhancement or problem-management. The medical professionals are still the main authority on categorizing the conditions in the form of diagnosis and being the gate-keepers with the power to give legal access to most of the pharmaceuticals used as enhancement technologies. However as the purpose of psychopharmaceuticals, when reflecting the knowledge of the culture of medical professionals, is interpreted as mainly therapeutical, their use as enhancement technologies of the self reflects the nuanced interpretations given to them by different social groups.

Even the pharmaceuticals themselves can be seen as active agents, not only because of their biological effects but the individual meanings and perceptions attached to them, the social practices and situations around them and the present and future ethical dilemmas that shows some of the boundaries and visions we have about enhancement technologies. As Rose (2007b: 211) points out referring to the discussion around ADHD as an example of medicalisation of problem behaviour:

“Outside these practices of authoritative behavioural management, is this conception of the role of the drugs that is dominant. For those becoming neurochemical selves, these drugs promise to help the individual him or herself, in alliance with the doctor and the molecule, to discover the intervention that will address precisely a specific molecular anomaly at the root of something that troubles the individual concerned and disrupts his or her life, in order to restore the self to its life, and to itself again.”

Thus the individuals try to become themselves together with the help of medical professionals and pharmaceuticals. This has however raised questions about the ‘authenticity’ of the self when enhanced by neurochemical means (see e.g Uehara 2011; Wolpe 2002). For example if the detracting of certain cognitive abilities for instance in the case of Alzheimer’s disease is considered loss of the patients personality what happens to the personality when those same abilities are enhanced in healthy individuals (Wolpe 2002: 393–394)? Is using pharmaceutical enhancements an easy shortcut that diminishes the hard work and effort that are usually considered requirements to achieve coherent character (Schermer 2008)?

These questions reflect among other things the difficulty of locating the self in the neurochemical framework. A person's self is not just his or her cognition (e.g. Govaert 2009), understood in the broadest possible way, although it certainly plays an important part. The self is also the way the person interprets him or herself in the narrative identity (e.g. Singer 2004) they give to other people. In this sense the self is fictional (Uehara 2011) or socially constructed and “emerges from the dialectic between individual and society” (Berger & Luckmann 1966: 195). According to Berger and Luckmann psychological theories about identity are especially dialectical as they have great realizing potency and that potential “is particularly great because it is actualized by emotionally charged processes of identity-formation.” (ibid.198). In other words, and closely related to Habermas's aspect of personality, individuals use contemporary psychological theories of identity to formulate a sense of self which draw increasingly nowadays on neurochemical knowledge about the self. This implies that technologies that aim to change or enhance that neurochemical basis would also change the way we talk about ourselves: “Cognitive enhancement would affect our way of telling the stories that both support our ordinary practices and weave the fabric of our *selves*. Thus, the way the *self* exists cannot but change indirectly.” (Uehara 2011:138, italics in the original). Uehara (2011: 138 - 141) sees that this could either lead to self-enforcement or self-destruction depending largely whether one is opposed or in favour of such a change. In a similar way Wolpe (2002: 394) sees that the possibilities to define ourselves through neurotechnologies offers promises and perils:

“Neurological biotechnologies differ from others in that they ask us to explicitly consider the kind of “self” we want to have; or, to put it less dualistically, perhaps, the kind of self we want to be. For some, our astounding ability to manipulate our own biology is an integral part of who we are as human animals. For others, it is an affront to our humanity.”

In conclusion one could argue that our cultural knowledge about ourselves is interpreted more and more in terms of neurochemistry. The question whether this is desirable or not is not answered here. However the above discussion shows that if pharmaceuticalisation is looked at only in terms of societal pharmaceutical interventions this considerably limits the agency of both individuals and pharmaceuticals. The concept of pharmaceutical enhancement technologies of the self brings into the discussion the ways individuals interpret and modify themselves through neurochemicals. This does not mean that the process of pharmaceuticalisation and the use of pharmaceutical enhancement technologies of the self contradict each other as the creation of new techno-social identities is part of the pharmaceuticalisation process. These concepts could be considered as different aspects of the lifeworld namely culture and personality that form a dialectical relation. Thus pharmaceuticalisation and pharmaceutical enhancement technologies of the self are seen as having conceptual similarities to both Habermas's different aspects of the lifeworld and with

Berger and Luckmanns dialectical relationship with psychological theories and identity formation. Due to space limitations their further development and applicability to other empirical case studies is however left for future research.

Chapter 7. Conclusions and suggestions for future research

According to this research non-prescription CED's have been occasionally used by a small portion of students in Amsterdam as 'study aids' while under academic pressure and for variety of other reasons. Both the perception of the students that the (non)-prescription use of Ritalin has increased and the fact that it was the most common CED used without a prescription suggests that methylphenidate in particular is used as a cognitive enhancer which could reflect the increased consumption of ADHD medication in the beginning of the millennium in the Netherlands (Van den Ban et al. 2010). Other surveys has also reported Ritalin as the most used non-prescription ADHD medication (Van den Ende 2010) and that its use is more common among older pupils compared to younger ones (Benschop et al. 2011). Whether the increased consumption is due to over-prescription, faking of symptoms or both (or neither) is an important area of future enquire. Also the perspectives and attitudes of prescribing physicians towards the diagnostic criteria in general and the use of prescription pharmaceuticals for enhancement in particular offers another interesting area of research especially now that the fifth version of the Diagnostics and Statistics Manual (DSM 5) has new instructions for diagnosing ADHD in adults which were not provided in the earlier editions (APA 2013).

The use of pharmaceuticals for enhancement purposes requires discussion not only by medical professionals but the society at large; policy makers and parents, academics and 'lay people' as well as the media and the pharmaceutical industry are different stakeholders that probably have their own, though not unified perspectives about CED's (see for example Forlini & Racine 2010). This thesis provided insights from a keys user group of CED's, namely university students themselves. It showed that different perceptions, practices and views on ethical issues about the use of pharmaceutical cognitive enhancers affect each other and that their use entails different kinds of expectations, effects and future visions. The perspective of students who do not have experience of cognitive enhancement drugs is also important area of future research. Do students who know that their peers are using CED's feel pressured to use them? How easy would it be for them to gain access to the substances if they wanted to? What kind of categorical differences do students give for non-prescription medication use and other 'hard drugs' if any? Are their differences between disciplines, faculties or even universities on how they perceive the use of CED's?

This research has concentrated on pharmaceuticals and substances used by particularly academic youth but future research should also enquire the perceptions and practices of youth groups that are not affiliated with academia. As this research showed different substances are used for variety of reasons as prescription medications are used ‘to get high’ and illicit street drugs are used ‘to finish a paper’. This suggests that chemicals that are used to have an effect on somebody are not necessarily easily categorised using different dichotomies of therapeutic/enhancing, healthy/unhealthy, addictive/non-addictive, risky/beneficial or ethical/unethical. People give their own meaning to the substances they consume and they use them to achieve their own goals. Empirical social research enables to go beyond simple dichotomies and provide detailed descriptions of the actual experiences of chemical using youth.

The discussion about drugs that may or may not enhance the abilities of individuals and whether or not it is acceptable for them to do so is put to another perspective when considering the vast gap between different populations ability to access even the life-saving medicine let alone life-enhancing ones (eg. Petryna & Kleinman 2006). As one of the ethical concerns around the fair use of CED’s is that they should be available for everybody, not just the privileged few, comparative studies between different regions of the world might broaden the perspective of which the current ethical debate around their use is based on.

It is important that the discussion and research around cognitive and other enhancement technologies are based on empirical knowledge about their effects and prevalence to avoid giving too optimistic visions of their potential to enhance our abilities. Increased research and media interest to the phenomenon could inflate ‘a neuroenhancement bubble’ if the use of CED’s is reported as widespread and their efficacy overestimated (Outram 2010; Lucke et al. 2011; Ferrari et al. 2012). This research contributed in a modest way to increase the knowledge about (non)-prescription cognitive enhancement drug use among academic youth in Amsterdam, namely about the different perceptions, practices and ethics involved. Several questions were left to be answered by future research and other important questions were perhaps not even asked. However, as an exploratory research this Thesis functioned as prevailing the need for future investigations and gave some preliminary directions where to point them in addition to developing a more theoretical approach for the use of pharmaceutical enhancement technologies.

Appendix 1. Codes and their prevalence in the transcribed interview data.

CODES-PRIMARY-DOCUMENTS-TABLE	Group 1	
Report created by Super - 21-05-2013 17:20:38		
HU: [H:\NetworkTrash\Interviews G1.hpr7]		
Code-Filter: All [35]		
PD-Filter: All [2]		
Quotation-Filter: All [150]		
	P 3: Interviews group 1.doc	TOTALS:
Access to substance: internet	1	1
Access to the substance: a friend	10	10
Amphetamine	3	3
Aniracetam	1	1
Cocaine	1	1
Concerta	2	2
Description of effects	25	25
Description of situation	27	27
Ephedra	1	1
Ethics of availability	9	9
Ethics of fairness	13	13
Ethics of informed free will	3	3
Expectations	5	5
Future views	13	13
Getting information	8	8
Ginko bilboa	1	1
Modafinil	2	2
Oxiracetam	1	1
Perceptions of availability	5	5
Perceptions of benefits	3	3
Perceptions of others	17	17
Perceptions of policy	5	5
Perceptions of prevalence	14	14
Perceptions of risks	7	7
Piracetam	1	1
Purpose of use: Creativity	2	2
Purpose of use: improve concentration	4	4
Purpose of use: improve memory	1	1
Purpose of use: sports	1	1
Purpose of use: staying awake	1	1
Purpose of use: Studying	5	5
Recreational use	5	5
Ritalin	11	11
Side-effects	7	7
Times consumed	7	7
TOTALS:	222	222

CODES-PRIMARY-DOCUMENTS-TABLE	Group 2	
Report created by Super - 21-05-2013 17:18:04		
HU: [H:\NetworkTrash\Interviews G2.hpr7]		
Quotation-Filter: All [139]		
	P 1: Interviews group 2.docx	TOTALS:
Access to information	7	7
Access to the substance: Internet	3	3
Access to the substance: prescription	2	2
Access to the substance: purchased from another country	1	1
Access to the substance: relative	1	1
Adderal	1	1
Amphetamine	4	4
Caffeine pills	1	1
Concerta	3	3
Description of distribution	6	6
Description of effects	24	24
Description of others	25	25
Description of situation	17	17
Dietary use	1	1
Distribution prevalence	6	6
Ethics of availability	6	6
Ethics of fairness	7	7
Future views	10	10
LSD	1	1
Modafinil/Modalert	8	8
Oxazepam	3	3
Perception of risks	5	5
Perceptions of availability	1	1
Perceptions of benefits	4	4
Perceptions of dependency	5	5
Perceptions of diagnosis	19	19
Perceptions of pharmaceuticals	1	1
Perceptions of policy	3	3
Perceptions of prevalence	14	14
Providing information	2	2
Purpose of use: staying awake	3	3
Purpose of use: studying	3	3
Purpose of use: working	2	2
Purpose of use:travelling	1	1
Ritalin	9	9
Side-effects of medication	9	9
Time of diagnosis	4	4
Times consumed	1	1
Type of diagnosis	6	6
Type of medication: Concerta	1	1
Type of medication: Ritalin	3	3
TOTALS:	233	233

Appendix 2. List of questions used in the semi-structured interviews

1. What kind of cognitive enhancement drugs have you used?
2. Do you have a diagnosis for their use?
3. When was the first time you used cognitive enhancement drugs?
4. How many times have you used them?
5. Did you look up information about the risks before/after using them?
6. For what purpose did you use them?
7. Did you have expectations about the effects?
8. Could you describe the effects.
9. Did they have any harmful effects?
10. Where did you get them?
11. In what kind of situation(s) did you use them?
12. How many people do you know that use cognitive enhancement drugs?
13. Should people be able to use them if they wanted to?
14. Do you think the use of CED's for studying is unfair for people who don't use them?
15. Do you think the university should have some kind of policy about their use?
16. Do you think you will use them in the future?

Appendix 3. Survey questionnaire

Perceptions, practices and ethics of cognitive enhancement drugs. A case study among academic youth in Amsterdam

This survey questionnaire is part of a Master's thesis research project Perceptions, practices and ethics of cognitive enhancement drugs, A case study among academic youth in Amsterdam. It is part of the master's programme in Medical Anthropology and Sociology at the Graduate School of Social Sciences of the University of Amsterdam. The answers will be handled anonymously and confidentially. They will not be distributed to any third party. Cognitive enhancement drugs or "study drugs" are defined in this research as prescription medication (for example Ritalin, Concerta, Modafinil, Adderal) that are used to effect study situations. If you would like to participate in the research more please send an e-mail to aleksi.hupli@helsinki.fi to schedule a possible interview. Thank you for your answers!

What is your gender *

- Male
- Female

What is your age *

- 18-24
- 25-30
- 31-35
- 36+

What faculty do you study in? *

Which university do you go to? *

Are you a member of a student association/group? *

- Yes
- No

What is your country of origin? *

- The Netherlands
- Country within the EU
- Non-EU country

Do you know people who have tried study drugs? * In this survey study drugs refer to prescription medication that are used in a study situation.

- Yes
- No

Do you think using study drugs is ethical? *

- Yes
- No
- Depends on the situation

Have you ever tried study drugs? *

- Yes
- No

Which study drugs have you used?

- Ritalin
- Concerta
- Modafinil
- Adderall
- Other:

Approximately, how regularly have you used them?

- Daily
- Weekly
- Monthly
- Once a semester
- Less than once a semester

Do you still use study drugs?

- Yes
- No

When was the last time you used study drugs?

In a one or two sentences, please describe for what purpose(s) do you use study drugs.

In a one or two sentences, could you describe the effects?

In a one or two sentences, please describe any side-effects you have experienced.

From which source(s) did you get hold of these study drugs?

- They are prescribed for me
- They were given to me by a friend
- They were sold to me by a friend
- They were given to me by a stranger

- They were sold to me by a stranger
- I got them online
- Other:

Do you know the person you got them from?

- Yes, always
- Sometimes
- No, never

Do they have positive effects?

- Yes, always
- Sometimes
- No, never

Do they have negative effects?

- Yes, always
- Sometimes
- No, never

Do you have a diagnosis of

- ADHD (Attention Deficit Hyperactive Disorder)
- ADD (Attention Deficit Disorder)
- Narcolepsy
- Other:

Have you been described medication for your diagnosis?

- Yes
- No

Have you ever given your prescription medications to other people?

- Yes
- No

Do you know the people to whom you gave your medication?

- Yes, always
- Sometimes
- No, never

Add item

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