

Running Head: USE OF PHARMACOLOGICAL COGNITIVE ENHANCERS IN SOCIETY

**The Urge to Transcend: An Analysis of Pharmacological Cognitive Enhancer Use in
Modern Society**

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Introduction

Cognition, a phenomenon that constitutes the life of the mind, is often considered to be the self-defining feature of humans and a point of pride for many individuals. The term “cognition” can refer to a combination of processes an organism uses to manage information, including perception, attention, learning, memory, language, skilled motor behaviors, and so-called executive functions, such as decision-making, goal-setting, planning, and judgment (Whitehouse, Juengst, Mehlman, & Murray, 1997). It is common to hear people complain that their memory is inadequate or that they cannot pay attention in certain cognitively demanding situations; however, the concept of pharmacological cognitive enhancers (PCEs) did not arise to alleviate these people of their typical complaints. Rather, PCEs were originally developed to help people suffering from brain injuries and neuropsychiatric disorders (e.g. attention deficit hyperactivity disorder) or neurodegenerative disorders (e.g. Alzheimer’s disease) regain control over their memory, attention, and executive function abilities which are frequently affected in a negative way by their condition (Sahakian & Morein-Zamir, 2010).

Cognitive enhancement, the improvement or extension of the capacities of the mind beyond what is necessary to sustain or restore good health, takes many forms ranging from education to pharmaceutical cognitive enhancers such as Ritalin to transcranial magnetic stimulation. The central theme of this paper revolves around the use of PCEs by healthy individuals to increase their abilities beyond their natural state, although other forms of cognitive enhancement will also be briefly discussed. PCEs interact with notions of authenticity, societal and individual progress, personal identity, and people’s rights, making it a very interesting focal point for an ethical debate like the one that will be elaborated here.

Biological Foundations of Cognition

The neural factors underlying cognition are complex and still not that well understood. The brain is composed of individual neurons that interact with each other in intricate patterns. These interactions occur through the transmittance of neurotransmitters (e.g. dopamine, acetylcholine, and glutamate) across small junctions or synapses between nerve cells. Different neurotransmitter messages of different strengths are then integrated by neurons, allowing information to be processed.

The biological cause behind cognitive impairment is thought to be due to the dysfunction of nerve cells and their synapses, leading to a loss of interaction between chemical neurotransmitters and their receptors (Whitehouse et al., 1997). The result then is the impairment of communication between neurons and thus, weak or nonexistent integration and spread of incoming and stored information in the brain. When PCEs are generated for people suffering from cognitive impairments, their aims may include preventing the death of brain cells, strengthening the affected synapses, and amplifying receptor responses to relevant neurotransmitters. Currently available PCEs include Donepezil, a memory-enhancing drug which is used to treat Alzheimer's disease; Provigil, a wake-promoting agent for the treatment of excessive daytime sleepiness associated with narcolepsy; and Adderall and Ritalin, which are drugs designed to increase attention, working memory, and control of responses in attention deficit hyperactivity disorder (ADHD) patients (Greely et al., 2008; Jongh, Bolt, Schermer, & Olivier, 2008).

It is interesting to note that PCEs can affect our cognitive capacities in many ways. For example, memory drugs are a class of PCEs that are developed to affect the speed of memory

storage and/or influence the intensification of memory encoding (Hall, 2003; Farah et al., 2004). Consequently, it could be possible to optimize normal memory, un-do the decline in memory ability that accompanies normal aging, and even control memory dampening and erasure. On a related note, drugs made for resolving attention problems could in theory enhance normal attention or sustain attention despite fatigue and sleep deprivation. Given this potential, a relevant question becomes: are normal people (instead of only the cognitively impaired with deficits caused specifically by disease or injury), using such drugs to enhance their cognitive performance?

Current Usage of Pharmacological Cognitive Enhancers

In early 2009, an episode of the fictional show “Law and Order: Special Victims Unit” featured a gifted high-school student who took the drug Provigil to help her study, despite not medically needing it. This student revealed that abusing drugs such as Provigil, Ritalin, and Adderall in an effort to focus and gain an edge was common at her prestigious and competitive academy. The content of this episode can actually be seen as containing less fiction and more reality. Non-medical use of prescription drugs in students has undergone a dramatic increase over the past several years. In the USA, studies indicate that up to 16% of students on some college campuses use stimulants (Babcock and Byrne, 2000; McCabe et al., 2005). The most commonly reported motives for use were to aid concentration, help study, and increase alertness (Teter et al., 2006). The abuse trend has spread to younger students as well: children as young as 13 have been reported to abuse stimulants for school purposes (Johnston et al., 2006).

PCEs have an appeal that extends beyond the academic arena. The military, professional workers such as physicians, surgeons, and businessmen, people working night shifts, athletes, and the elderly have all expressed interest in the use of cognitive enhancers for increased

alertness, arousal, and/or memory power. The increasing public desire for non-medical use of cognitive enhancers has led many researchers to not only study the effects of already developed PCEs on healthy individuals but also to start the development of PCEs that specifically aim to boost normal brain power, in terms of intelligence, memory, and other cognitive capabilities (Rose, S.P.R., 2002; Hall, 2003). Many studies have found that enhancers already in the market for helping diseased individuals recover from their debilitating cognitive condition actually facilitate cognitive processes in non-diseased individuals to some extent. For example, Donepezil has been found to improve the retention of training in healthy pilots tested in a flight stimulator (Yesavage et al., 2002); Provigil was found to improve subjective attention and alertness, as well as spatial planning, stop signal reaction time, and visual pattern recognition memory in healthy human volunteers (Turner et al., 2003); Ritalin has been shown to enhance spatial working memory performance and increase executive function on novel tasks in healthy individuals (Mehta et al., 2000; Elliot et al., 1997); and components of Adderall were also found to improve working memory and executive function in healthy volunteers (Mattay et al. 2000).

As discussed before, these aforementioned drugs were originally developed to treat disorders and as an afterthought, they happened to have an enhancing effect on normal abilities. Ampakines are a class of drugs that have been developed to augment normal encoding mechanisms, specifically long-term potentiation, in the brain in an effort to promote learning and memory in healthy people (Hall, 2003; Jongh et al., 2008). The types of PCEs available for use by the public are clearly increasing and their potential to improve cognitive performance in normal individuals is being reported extensively. Simultaneously, groups of people are emerging who either promote or discourage the use of “smart drugs” that can supposedly help healthy humans think faster, remember more, and focus more keenly.

Moral Conundrum

One can never be too rich or too thin, the saying goes, suggesting that at least some human characteristics should never have an optimum level—one can just keep getting better and better. Is cognition among this class of characteristics? Some people think that indeed cognitive performance will always have room for improvement. Such supporters of enhancement (known as transhumanists) want people to attain the highest possible level of cognition; and thus, promote the use of PCEs in healthy individuals, with the goal of allowing people to achieve feats that could not be possible without these drugs. As a result, they advocate that society should have unlimited access to PCEs. On the other hand, there are people who believe that boundaries most certainly need to be set in terms of how smart we can become. These individuals (known as bioconservatives) argue that we should not endorse practices that would make normal people's cognitive abilities too high for their own good. Here, PCE use (i.e. increased cognitive ability) is seen to bring about more harm than benefit for the individual and the surrounding community. Hence, the opponents of pharmacological cognitive enhancement insist that society should not have free access to PCEs. A moral dilemma is obviously present here: one can use PCEs as a means of becoming smarter and accomplishing more than could have ever been possible otherwise but this progress comes at the potential expense of missing out on the learning experience often involved in achievements; in addition to losing self-worth, disrespecting human nature, and threatening the rights of non-enhanced human beings. To come to a resolution for this controversy, it becomes necessary to examine the specific arguments and ethical points raised by people on each side of this issue.

Ethical Analysis

The Human Nature Argument

Bioconservatives have several arguments to support their view that society should not have free access to PCEs. The first of their arguments to be discussed here revolves around the concept of human nature. Critics of pharmacological cognitive enhancement declare that individuals who make use of this kind of enhancement are disrespecting the very human nature we all are born with. Scholars like James Sabin and Norman Daniels (1994) point out that people's talents and skills (i.e. cognitive capacities) are inborn and almost always unequal. They believe that mankind's duty is not to make use of means like PCEs to level off individual differences but rather, we should acknowledge and appreciate the full array of personal talents and skills that we can achieve through our given natural capacities.

Bioconservatives view pharmacological cognitive enhancement as a method that fundamentally changes what is natural by contributing to the tendency to treat our bodies and minds like machines to be manipulated and perfected (Whitehouse et al., 1997; Sandel, 2004). By using PCEs to change the neural networking of our brains, it seems like we would be eroding the concept of human agency, molding our natural state to our liking, and making ourselves vulnerable to detriments in other capacities such as empathy, emotional depth, visual creativity, or perceptiveness. This dehumanization aspect of pharmacological cognitive enhancement is morally unacceptable from a Kantian perspective. One emphasis of Kantian ethical theory is respect for persons, that is, every person by virtue of his or her humanity has inherent dignity (Beauchamp, Walters, Kahn, & Mastroianni, 2008). Thus, if we treat our bodies like machines and if cognitive enhancement via drugs does actually come at the expense of losing some of our

given capacities, we would be disrespecting our natural human condition and sacrificing our dignity. We will destroy the very thing that makes us human—our nature.

Some people may ask the question: is there even a “nature” that is common to all humans? Transhumanists have answered no; they are skeptical about the idea that there is a single nature that all members of humanity possess (Caplan, 2009). As a result, the supporters of pharmaceutical cognitive enhancement claim that by changing our capacities and thus, our nature, there is nothing essential to all humanity that will be lost.

Regardless of the potential lack of commonality in the human nature we all have, the fact that bioconservatives use the desecration of human nature as an argument against the use of PCEs suggest then that they see something valuable or sacred in human nature in general. This notion can be countered by noting that nature is not something that we all always respect. Frances M. Kamm (2009) claims that what is natural and what is good are two distinct conceptual categories and this distinction is relevant in the PCE debate. She provides the examples of cancer cells, AIDS, and tornadoes—all of these factors are directly from nature but we do not honor them; so similarly, the nature or mental capacities we are born with are not necessarily good and do not demand respect.

At the same time though, it should be noted that appreciation of one’s given nature and the desire to supplement it are not mutually exclusive actions; it is most certainly possible to be grateful for what mental capacities we have but see PCEs as a way to make something we have even better. As Kamm (2009) has astutely pointed out, appreciation of our nature does not require limiting ourselves to it. If PCEs give us the potential to bring about change and improvement, why not take advantage of it? That is, it seems foolish to transhumanists that we would choose to drag on through life with our existing intellectual endowment if it could be

made better and perhaps more effective with the use of pharmacological cognitive enhancers. From a virtue ethics perspective, one that reflects on the agents who perform actions and their motives (Beauchamp et al., 2008), it seems that as long as one has the disposition to act conscientiously and cultivate moral virtues such as reliability, sincerity, and compassion after being enhanced, the act of using PCEs to affect one's mental capacities is morally permissible.

The Authenticity Argument

The moral ideal of authenticity, as defined by Charles Taylor (1991), is that each of us finds our own way of being in the world, while flourishing and being true to oneself. The "being true to oneself" aspect is the central concern for most bioconservatives. PCE use violates the moral ideal of authenticity according to these critics because people using cognitive-enhancing drugs are masking their original cognitive traits or more so, replacing them with other, supposedly stronger ones. Thus, anything that person achieves after being enhanced is not because of that person's own abilities but rather due to the power of the drug. It is also possible that people who take cognitive-enhancing drugs begin to think that they are performing better at certain tasks even though they may not be. PCE use then has the potential to invite delusion into the lives of its users.

On a related note, moral philosopher Leon R. Kass (2003) wrote "...in those areas of human life in which excellence has until now been achieved only by discipline and effort, the attainment of those achievements by means of drugs...looks to be 'cheating' or 'cheap'" (p. 21). Many of us grew up believing that we need to work hard and exercise disciplined and dedicated striving for our achievements: if something is not earned, it is not authentic. PCEs seem to be undermining our capacity to succeed on our own efforts and may even make it difficult for us to consider ourselves truly responsible for our accomplishments and worthy for praise or credit

when we succeed on a task. Sandel (2004) mentions that when we do something on our own, it is one thing; to achieve that goal via artificial means is something else—something less. To bioconservatives then, there seems to be an inverse relationship between enhancement and admiration for consequent achievement.

The use of PCEs in academic settings directly touches upon the issue of cheating. Several scholars have brought up the point that cognitive enhancer use can give the people using them an unfair advantage over others in certain competitive situations or test-taking environments (Farah et al., 2004; Sahakian & Morein-Zamir, 2010). If utilizing the PCEs out in the market now simply helps with rote memorization or has transient effects on retention and recall with no real learning involved, then this concern is a valid one. Studies showing whether PCEs affect learning on a long-term basis have yet to be conducted.

Cheating is a direct violation of Kant's categorical imperative, whose first formulation has been paraphrased by Beauchamp et al. (2008) as follows: "Always act in such a way that you can will that everyone act in the same manner in similar situations" (p. 16). If everyone behaved as the cheater did, exams would no longer be ways to exercise one's skills or evaluate mastery of the relevant material but instead, exams would transform into a game of who can memorize the most. That is, there would effectively be no such thing as an exam. Since cheating presupposes the existence of examinations, the cheater cannot consistently will that everyone acts as he does.

However, proponents of PCEs stress that the type of exam under consideration determines the moral permissibility of PCE use. Whitehouse et al. (1997) explain that the use of cognitive enhancers for examinations affecting entrance to colleges or professional schools is morally acceptable. This is because the point of these exams is not to measure the sheer extent of the applicant's abilities, but rather to measure their abilities relative to those of others in their

cohort. There is no violation of the first formulation of Kant's categorical imperative here. Of course, this argument is only relevant if every person taking the exam is allowed to use PCEs; and transhumanists encourage such usage.

In addressing the concern about unfairness of PCEs, it has been pointed out that such unfairness already exists (Greely et al., 2008; Bostrom & Sandberg, 2009). Differences in education, including private tutoring, preparatory courses, and other enriching experiences are already working in our current society to give some students an advantage over others. Why is it that bioconservatives are willing to accept the existence of these benefits that strongly highlight unequal enrichment opportunity but not be willing to give PCEs a chance?

Moreover, supporters of cognition-enhancing drugs can express how it is not that people using cognitive enhancers no longer have to exert any effort in life but rather, it is just that they have to exert less effort than before. An analogy can be drawn by referencing an example of enhancement such as shoes, which comfort our feet and thus have the potential to affect our speed of walking, among many other things. When we wear shoes, we still have to put in effort in order to move somewhere; similarly, once a person takes a memory-enhancing drug, he will still have to work with the material and put in some effort into memorizing it. There does not seem to be anything inherently wrong with this claim. Do we not appreciate shortcuts and "quick fixes" in all other parts of our life? Why should we treat our mental life any differently? The ethical principle of respect for autonomy plays a key role here. This principle emphasizes the importance of individual freedom and choice (Beauchamp et al., 2008). Therefore, it can be said that it is our ethical responsibility to allow people to decide for themselves whether or not they think struggle and maximal effort should be prerequisites for achieving happiness and success

and consequently, whether or not they would like to use cognition-enhancing drugs to achieve their goals.

Lastly, transhumanists do not see PCEs as a threat to authenticity, but rather as a means through which we can facilitate our authentic efforts at self-discovery and self-creation (Parens, 2009). By strengthening cognitive traits such as attention and memory, PCEs can allow its users to focus more wholly on a task at hand, freeing the mind of distractions and irrelevant information. We may be able to think about matters in a way we would never be able to think otherwise, make smarter decisions, and even feel new emotions. All of these factors have the potential of actually helping us find our true selves—helping us become who we are meant to be.

The Civil Liberties Argument

Threat to civil liberties is a relevant concern for the opponents of pharmacological cognitive enhancement, especially if PCE use becomes widespread. Civil liberties are a set of rights that empower individuals in society to be able to exercise their will in many different contexts. Some civil liberties include the right to security, the right to privacy, freedom of conscience, freedom of choice, and freedom from forced labor. It is possible that situations will arise in the future in which people are pressured to enhance their cognitive abilities. Anjan Chatterjee (2006) distinguishes between explicit and implicit coercive forces that can act on individuals. He says that explicit coercion will be seen with classes of individuals who may be expected to take certain PCEs for the greater good of mankind. For example, such coercion would be present in the military and medical professions. Patients will obviously benefit from having a physician who is more focused and knowledgeable; thus, doctors may soon be required to take PCEs regardless of whether or not they would like to (obviously a violation of the principle of autonomy). Implicit coercion will be strongest in environments of competition,

where slight improvements can have a major impact on the fate of the contest. Implicit coercion is likely to exist in athletic, business, and academic environments. Regardless of which kind, coercion threatens civil liberties by essentially not allowing individuals the freedom to choose non-enhancement.

Other problems come to surface when thinking about a future society in which PCEs that could make people using them vastly smarter than others are developed. Given the increasing demand and interest in PCEs, this train of thought is not unreasonable. Daniel Wikler (2009) anticipates that such conditions will result in a society where there will be one class of humans that are intellectually superior to another class of humans with intelligence of a normal level (as per current standards). Wikler contends that a paternalistic relation will most likely develop between the cognitively enhanced people and the non-enhanced people, similar to the relationship that exists now between people of normal intelligence and the mentally retarded. This paternalistic relationship will probably involve the cognitively-enhanced people intervening in the personal affairs of the non-enhanced by making financial decisions for them or barring them from voting on important issues, for example (with the intellectually enhanced people making the assumption that the un-enhanced are not knowledgeable enough to make these decisions on their own).

If cognitively enhanced people do behave in this way, they are failing to practice impartial consideration, an essential feature of utilitarianism (a consequence-based theory). Impartiality requires that when an individual performs an action, he must base that action without regard to personal preference and interest and also without regard to the special talents or handicaps of people involved in the situation (Beauchamp et al., 2008). In the case of a society in which many people use PCEs that can dramatically increase their intelligence and these

enhanced people then interfere in the lives of the non-enhanced just for the sake of helping someone who is disadvantaged as compared to themselves, they are not practicing impartial consideration and therefore, they are acting in a morally impermissible manner.

Furthermore, we can come to a similar conclusion using the ethical framework of Liberal Individualism. Liberal Individualism is a rights-based theory that focuses on protecting people's basic liberties and their interests, particularly in the context of societal intrusion (Beauchamp & Childress, 2001). Indeed from this point of view, cognitively enhanced people still have their rights to autonomy, confidentiality, privacy, etc. but at the same time, one needs to determine whether the newly-enhanced population would be violating or infringing upon the rights of non-enhanced individuals. As already discussed, such a violation of rights would indeed be occurring and since the non-enhanced people are in addition not even a threat to the rights of others, it is not morally justifiable for cognitively enhanced people to override the rights of the non-enhanced, regardless of the community benefit that might come from it. From a moral perspective, all competent people should have the same civic status but as the previous bioconservative argument has just displayed, PCE use might very well generate two classes of human beings that are treated very differently, resulting in the assignment of differential statuses.

Transhumanists argue that people who become cognitively enhanced via PCEs will differ in degree from other humans but not in kind and so at least the inherent moral status of the two classes will remain the same (Kamm, 2009). However, supporters of cognitive enhancement admit that it is indeed possible for the newly enhanced population to use their intellectual superiority to intervene in different dimensions of non-enhanced people's lives, making the non-enhanced inferior in civic status. Nevertheless, inferior civic status is not necessarily a bad thing as we have adopted the same practice for dealing with the mentally less competent today. The

determining factor of the moral justifiability of enhanced people's intervention into non-enhanced people's affairs is whether or not they have the intention to do good for these non-enhanced people. Wikler (2009) elaborates on his argument described earlier by noting that the sense of confidence "normal" people have in thinking that they are capable of guiding their own lives can actually just be wishful thinking. The fact that marriages fail, people do not save for their retirement, and voters often elect inferior candidates all show that we could probably benefit greatly from the intervention of people who are much brighter than we are and who have our interests at heart, Wikler says. Again, a virtue ethics approach is helpful here in guiding us to a conclusion as to whether the cognitively enhanced people would be acting in a morally right manner. From the view of this ethical approach, if the cognitively enhanced have sincere motives for helping other people and being good-doers, and then actually caring to see that the good intended is done (i.e. adhere to the principle of beneficence), then intervening in the lives of the cognitively enhanced seems morally permissible.

Interestingly proponents of enhancement can respond to the concern of coercion to use PCEs directed against those who do not want to be enhanced, by saying that eliminating the use of pharmacological enhancement in the workplace or in school is actually coercive in itself as well (Farah et al., 2004). This kind of action will be denying people the freedom to practice a desired means of self-improvement. Is it morally justifiable then to do something like this just to prevent any negative consequences that might result from the freely taken choice not to enhance? The transhumanist answer is that outlawing PCE use is not morally justifiable as one certainly has the right not to alter one's own body but this does not imply that the person also has the right to make such enhancement impermissible for anyone else who may want it.

The Treatment versus Enhancement Argument

Transhumanists also have several arguments in support of their goal of allowing unlimited societal access to PCEs. The first one to be discussed here is the treatment versus enhancement distinction. Proponents of cognitive enhancement say that a boundary between treatment and enhancement essentially does not exist and so society should accept enhancement in the same way that it accepts treatment. This is because to transhumanists, treatment and enhancement have the same end goals. From a consequentialist position, John Harris (2009) argues, "...the overwhelming moral imperative for both therapy and enhancement is to prevent harm and confer benefit." (p. 154). Harris points out that both enhancement and therapy lead to an improvement of an individual's prior state and they both afford an individual protection and benefit; so trying to create a moral distinction between the two actions is almost fruitless in his view. It may follow then that PCE use should be considered no different than the use of drugs for medical reasons, as they both ought to help the individual live a better life than before.

To respond to those who are really adamant about drawing a line between enhancement and treatment, discussions about vaccines are often found in the pro-enhancement literature as a means of showing how most of what passes for treatment can be seen as an enhancement of an individual and vice versa, making any boundary between the two ineffective. Providing a vaccine that stimulates a normal immune system to produce antibodies it could not have produced otherwise is usually considered a form of treatment; however, Harris (2009) and Kamm (2009) assert that these vaccinations can rightfully be categorized as enhancement as they essentially override one's natural capacities like PCEs do. They argue this is because treatments that protect human beings from things to which they are normally vulnerable and operate on the organism by affecting the way the organism functions basically work as enhancements.

To supporters of enhancement, the concept of disease itself seems elastic. Kamm (2009) describes how some illnesses produce states that are less bad than, or equal to, being at the low end of a normal range for a property such as intelligence. So shouldn't we be using pharmacological cognitive enhancers to help or "treat" the people lying at the lower end of the intelligence spectrum? It can also be argued that PCE use not only confers benefit on an individual but also on society as a whole. For example, providing cognitive enhancements to human beings may lead to the discovery of more treatments. That is, as PCEs make us smarter, we will probably be more likely than we currently are to find cures for illnesses. From a consequentialist perspective then, one that determines whether actions are right or wrong according to the balance of their good and bad consequences (Beauchamp et al., 2008), it seems as though pharmacological enhancement is a practice worth pursuing.

However, according to opponents of PCE use, society should not embrace enhancement just as it embraces treatment. People on this side of the issue try their best to establish clear differences between the concepts of enhancement and treatment. Many bioconservatives define disease as a departure from normal species functioning. Schwartz (2005) and Daniels (2009) see treatment as a method for bringing us back to or maintaining normal functioning and enhancement as something that surpasses our species-typical condition. In a sense then, enhancement can actually be seen as an interruption of the way we normally function. To Schwartz (2005), the treating or fixing of a dysfunction has "superior moral status" to modifying normal functioning (i.e. enhancing) because it has "a virtue of accepting the normal" and avoiding the implied rejection of normal human life that comes with enhancement.

Some scholars have even said that health care insurance coverage should be restricted to disadvantages caused by disease and disability and not just what other people perceive to be

disadvantages (Sabin & Daniels, 1994). Bioconservatives look at treatment as a necessity, something that can help people regain control over their lives and allow them to live in a normal and healthy manner. They look at enhancement, like PCE use, as more of a luxury, a frivolous practice that tries to undermine and overcome what is normal. This way of thinking can be considered morally valuable if we attribute greater good to helping those who are worst off (i.e. the diseased) rather than helping those who are already better off, in a relative sense (i.e. healthy).

Critics of PCE use have also responded to the vaccine argument that tries to diminish any distinction between enhancement and treatment. Sandel (2004) and Daniels (2009) contend that vaccinations do not involve overriding one's natural capacities but instead, vaccines allow some of our natural capacities to flourish. As a result, vaccinations that combat illnesses still fall under the umbrella of treatment and remain distinct from enhancement (which overrides one's natural capacities), according to bioconservatives. Thus, treating illnesses and enhancing human capabilities via PCE use may both be desirable social goals but they both are not morally permissible to the same extent.

The Societal Progress Argument

As mentioned earlier, the prominent ethical theory of consequentialism requires us to determine whether something is right by evaluating the consequences of that action. It makes sense then to examine the effects that PCE use could have on our individual identity and on society. One spokesperson for the US Military, which frequently shows appreciation for cognitive enhancements, said: "The world contains approximately 4.2 billion people over the age of twenty. Even a small enhancement of cognitive capacity in these individuals would probably have an impact on the world economy rivaling that of the internet" (Bostrom & Savulescu, 2009;

p. 20). One reason to support PCE use in our society then would be to benefit from the profits that it would rake in, both directly and indirectly. Areas with pharmaceutical companies that are making the most effective cognition-enhancing drugs will obviously make money from local and global consumers but there is also much economic benefit to be gained if people in society become smarter and make better business and financial decisions.

Increasing our monetary gains is not necessarily a moral good and so one may ask, what morally valuable gains can we achieve for ourselves and society through the use of PCEs? We can consider the possibility that cognition-enhancing drugs may permit physicians to make more accurate diagnoses, or surgeons to operate with fewer lapses of attention or judgment. Further, with the use of cognitive enhancers the military will become more vigilant, more effective, and PCE use may even lead to shorter duration of conflicts (Sahakian & Morein-Zamir, 2010). If everyone is allowed to use cognitive enhancers that can increase one's learning, students will be able to grasp optimum amounts of experience while they are in school and will most likely be able to contribute to other technological and cultural advancements in their communities and society at large. PCEs can have the potential to help us focus and feel more emotion, with the possible result of us becoming more empathetic human beings and being able to contribute to helping others (obviously important from a virtue ethics point of view). Cognitively enhanced people will have the ability to search out and develop better information and encourage others to do so. These enhanced people will obviously benefit personally but at the same time, bring benefit to society as well. An example from Whitehouse et al. (1997) demonstrates this point: if cognitive enhancers improved driving ability, wouldn't we want to encourage people to use them so that there would be fewer accidents? The person here can drive better which is a benefit to him but can also potentially drive safer which is a benefit to society. The overall result here

seems to be confident individuals who can deal with life's tasks more effectively after using PCEs.

The bioconservatives, however, make it clear that only looking at the bright side of things is not acceptable. The desire for the gains that can be achieved by cognitive enhancement may lead to a 24/7 overworked society where people are pressured into working longer hours, simply because cognitive enhancers like Provigil allow them to. It is not difficult to imagine that a worker's willingness to use a drug that increased productivity would soon become a factor in hiring and promotion. A culture that only values productivity and intelligence will be a problematic one. If society ends up getting unlimited access to PCEs, Sandel (2004) notes that some people might be blamed or persecuted for not enhancing themselves. In addition to facing unnecessary pressure, this unenhanced population will probably have to live in a society that is arranged to suit the cognitively enhanced. That is, what was once normal intelligence might not be sufficient to navigate the society that the cognitively enhanced create for themselves.

The transhumanists say that the use of PCEs for school purposes will be a good thing for our society but bioconservatives disagree. As mentioned before, if some people choose not to take cognition-enhancing drugs before an exam, for example, they will be at a disadvantage and probably get lower grades as compared to the enhanced regardless of the amount of hard work they put into the studying process. Further, the use of PCEs to increase the school performance of children is particularly troubling because they do not get to make this decision for themselves. There is a clear trend in many western countries towards increasing prescriptions of Ritalin (Farah, 2005); and it has been suggested that one reason for this increase of Ritalin use may be due to parents finding that the only way to get assistance for their "extra active" children in school is to have them labeled with a disorder like ADHD (Diller, 1996). Parents' increasing

desire to tame their active children and give them a competitive edge early is disrespectful to children who may not desire to be inhibited in this way and an obvious violation of the Kantian principle of respecting all persons as rational beings. Children put in this situation are likely to become dependent on the cognitive enhancers and lose their sense of confidence and competence when functioning without them.

Critics of cognitive enhancement acknowledge that PCEs can affect people on an individual level and again, they do not see these changes as being too beneficial. Whitehouse et al. (1997) have brought attention to the idea that cognition-enhancing drugs may result in personality changes so striking in the person taking the PCEs that the person's family would probably wonder whether he or she is the same individual they once knew. It makes sense that one's personality would change as cognitive capacities increase. This is because increased memory, new insights, and better reasoning could all lead to new values, new perspectives on one's relationships, and new sources of pleasure and irritation. Changes in our personality have the potential to destroy relationships and can have a larger community effect. Literally speaking, PCEs may lead to a fundamental change in the person who decides to take them. Hence, bioconservatives hope to prevent the development of a shallow society where people will be overly competitive and no longer capable of holding on to their true identities by advocating that unlimited access to PCEs should not be allowed.

The Hypocrisy Argument: what makes PCEs less acceptable than other cognitive enhancers?

The issue that probably baffles transhumanists the most is the fact that there are many forms of cognitive enhancement that exist today to which people have no objection. What makes pharmacological cognitive enhancers different? Supporters of PCE use do not think that there is

any morally relevant distinction between traditional, acceptable means of cognitive enhancement and the new pharmacological enhancers.

Education is a prime example of a cognition-enhancing method that has been practiced for thousands of years. The goal of education is to give students specific skills and also to improve general mental faculties such as concentration, memory, and critical thinking. People often oppose PCEs because they are afraid that modifying the neural networking of the brain can be dangerous. Bostrom & Sandberg (2009), however, review the physiological effects that education (at home or school) can have on our minds, making us question whether conventional interventions actually produce more neurological changes than PCEs do. They discuss how learning to read alters the way language is processed in the brain and enriched learning environments have been found to increase dendritic branching, synaptic changes, neurogenesis, and cognition, as well as make the brain more resilient to stress and neurotoxins.

Stimulant drugs such as nicotine and caffeine have long been used to improve cognition. So how is taking Provigil different from sipping a cup of coffee? How is either of these morally different from getting a full night's sleep? Bostrom & Sandberg (2009) in addition list some other methods we often use to influence our mental state: bouts of exercise have been shown to improve various cognitive capacities temporarily and even one's diet can affect cognition. Such a list can continue for pages but the point that is trying to be made here is that all of these aforementioned means of cognitive enhancement often do not even generate an ethical yawn in the general public, but the mention of pharmacological cognitive enhancers stirs people in unimaginable ways. Why do people oppose PCE use but not any other form of traditional cognitive enhancement being used today?

In response to this argument, bioconservatives are quick to point out all the downsides of the currently available pharmacological cognitive enhancers, effects that do not apply to the conventional means of cognitive enhancement we already accept and endorse. For example, Donepezil has been shown to have detrimental effects on cognition, with one study revealing a deterioration of performance on speed, attention, and short memory tasks in healthy participants who did not take the drug for at least 21 days (Beglinger et al., 2004). In addition, low doses of Provigil have been reported to increase psychological anxiety and aggressive mood, and other PCEs seem to only improve mental capacities in subjects with lower IQ or working-memory ability (Jongh et al., 2008). Further, some cognition-enhancing drugs are not as effective in older populations as they are in younger populations (Jongh et al., 2008; Sahakian & Morein-Zamir, 2010). Clearly, more research on cognition-enhancing drugs needs to be done before we contemplate making them freely available to the general public.

Some bioconservatives have pointed out what they think is the key difference between traditional forms of cognitive enhancement and the new method of PCE use: the naturalness involved. This is where “pharmaceutical Calvinism” comes into play (Klerman, 1972). The traditional methods of expanding our capabilities, the pharmaceutical Calvinists argue, are “natural” and therefore praiseworthy while drug-induced abilities are artificial and thereby suspect. PCE use does not endorse learning and requires no training to be used unlike acceptable enhancements like computers and the Internet do. We do not know at the moment whether PCEs promote useful learning in real life (Bostrom & Sandberg, 2009). The value of learning is what makes cognitive enhancements earned by any traditional means morally acceptable over PCEs. Learning is so valuable because it is during the process of learning that we come up with questions, encounter confusions, make mistakes, acknowledge our potential, adjust your efforts,

and realize our limits. All of these factors work to help us in many domains of life from being well-prepared for set-backs to taking on new challenges without being dependent on something or someone else.

Therefore, when comparing pharmacological cognitive enhancement to conventional forms of cognitive enhancement, safety concerns and evaluations of nature cannot be overlooked. There could be long-term side-effects or risks of PCEs, which would be unacceptable to bear given that PCEs work to adjust already acceptable traits and are not considered to be a medical treatment by bioconservatives. As a Kantian analysis would support, it is our moral duty to flourish our capacities but not through artificial and potentially unsafe means.

So, What Ought to be Done?

The American political philosopher Robert Nozick once posed the question: what if a super-smart race or tribe arrived on the scene? We have already discussed the potential consequences for individuals and our community if this were ever to happen. It should be noted that Nozick's hypothetical can become a reality only if we allow the unlimited use of cognitive enhancers. Hence, we return to our original question: Should we provide or not provide free access to pharmacological cognitive enhancers in our society? One potential answer to this question is that the risks of unregulated use of PCEs to individuals or society at large are so great that they overwhelmingly outweigh any benefits to be gained and so the sale and use of these drugs to the non-diseased should be completely restricted. An alternative view would hold that the unlimited use of PCEs would create no appreciable risk or degradation of values and so its use should not be restricted. Perhaps a less obvious solution, and the one that the conclusion of

this paper will endorse, is partial restriction on the use of PCEs by the general public so that maximum benefit and minimum harm can be attained.

There are many reasons why the partial restriction of pharmacological cognitive enhancers seems to be the most effective solution to adopt. As mentioned earlier, research has indeed demonstrated the ability cognition-enhancing drugs have in improving certain domains of cognition but at the same time, there are complex factors that need to be taken into consideration. For example, although research findings have shown that some cognitive functions may improve following drug administration, they have also shown that other cognitive abilities may worsen (Sahakian & Morein-Zamir, 2010). Furthermore, we already discussed how PCEs can positively affect cognitive functioning in some groups but have no effect or even impair performance in other groups that consist of people who are older or already at an intelligence optimum. It is absolutely essential that we push for more research in the area of pharmacological cognitive enhancement, call for improvements, and generate long-term studies by the pharmaceutical industry to ensure the safety and efficacy of cognitive enhancement in healthy people before we grant unlimited access to PCEs.

In the meantime, however, it seems reasonable to require that PCEs be distributed following a “prescription-only” rule. This implies that doctors will have to evaluate whether or not to prescribe certain PCEs on a case by case basis. Furthermore, it can be suggested that the testing, manufacturing, and distribution of these cognition-enhancing drugs should remain under FDA’s control, especially for the new “smart drugs” that are being developed for people with normal cognition. For the future, as Whitehouse et al., (1997) has proposed, we should have the FDA modify its licensure process to one that still evaluates clinical safety and efficacy but also takes into account the types of social costs and benefits as well as personal risks and gains to be

effected by pharmacological cognitive enhancers (e.g. coercion effects, infringement of rights, informed consent, etc.)

Of course, some people will still gain illegal possession of PCEs despite any restrictions placed on their use. It is well-known that PCEs can be freely obtained through the internet, without prescription, from multiple websites in various countries. In a recent survey, 159 sites were identified as offering drugs for sale, only two were determined to be regulated, and 85% did not require a physician's prescription from the patient in order for a purchase to occur (Califano, 2008). It will thus be necessary for us to more closely regulate drug sales on sources like the internet, school campuses, and work places, being sure to impose heavy fines and punishments on those who break the rules. Restrictions on PCEs should be taken seriously by policy makers at least until we understand more about these drugs, their mechanism of action, and their long-term effects on people with normal cognition. Regulated access seems fairer and safer than absolute prohibition. The solution of partial restriction on PCE use is also morally justifiable as complete prohibition would provide a strong blow to the principle of autonomy and the foundation of Liberal Individualism.

We live in a competitive world where everyone feels like they need to be "good enough." If we aren't good enough we wonder how we can improve ourselves in the fastest, most convenient way. The advent of PCEs have the potential of allowing us to unhook ourselves from just relying on studying and training, but the science behind these drugs and people's education about their effects are not thorough enough to allow their unrestricted use. Ultimately, it is our responsibility as moral agents to spread our knowledge about pharmacological cognitive enhancers and deeply consider its implications for our time before we come to a personal decision as to whether PCE use should be promoted or discouraged.

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