

# Chapter 10

## The Societal Hazards of Neuroenhancement Technologies

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### ABSTRACT

*Using cognitive enhancement technology is becoming increasingly popular. In another paper, the authors argued that using pharmacological cognitive enhancers is detrimental to society, through promoting competitiveness over cooperation, by usurping personal and social identities and thus changing our narrative and moral character. In this chapter, the authors seek to expand that argument by looking at an emerging technology that is rapidly gaining popularity, that of transcranial stimulation (TS). Here the authors explore TS via two major methods, transcranial magnetic stimulation (TMS) and transcranial electrical stimulation (TES). In this, the authors seek to demonstrate that artificial cognitive enhancement is detrimental to society. Furthermore, that the argument can be applied beyond the moral dubiousness of using pharmacological cognitive enhancement, but applied to new, emergent technologies as well. In other words, artificial cognitive enhancement regardless of the technology/medium is detrimental to society.*

DOI: 10.4018/978-1-5225-5094-5.ch010

## INTRODUCTION: THE SOCIETAL HAZARDS OF NEUROENHANCEMENT TECHNOLOGIES

### Background: What Is Cognitive Neuroenhancement?

By and large, cognitive neuroenhancement drugs (colloquially also referred to as ‘smart drugs’) is a label given to prescription drugs such as Ritalin that are taken with the intent of improving cognitive performance. Smart drugs improve cognitive function such as alertness, attention, concentration, and memory; and psychological function such as mood and sleep, with the intent to indirectly enhance cognitive performance. By taking these drugs, users hope for amplification and/or extension of core cognitive capacities in order to perform better at the task at hand.

“Ultimately, our drug use is a reflection of our society” so the authors of a recent *Nature* commentary tell us, “and should never be considered without the broader context of why healthy people choose to use the drugs in the first place” (Sahakian & Morein-Zamir, 2007). According to a recent study, one in seven healthy college students in Switzerland uses neuroenhancement drugs to enhance their cognitive capacities aiming at improving their academic performance (Maier et al., 2013). In fact recent meta-analysis indicate that improved academic and sports performance was the greatest reasons given to using non-prescribed medication (Bennett & Holloway, 2017). In a recent survey conducted in Canada, 15% of medical students admitted non-medical and/or off-label use of one or more pharmaceutical stimulants (Kudlow et al., 2013). Many other studies confirmed the widespread use of these drugs in the academic environment; not only students but also faculty members reported use of such substances (Maher, 2008). There is evidence to suggest that European students, at least, perceive non-prescribed use of stimulants by peers is higher than their own personal usage and that this perception along with perceived higher peer approval for its use was associated with higher level of personal use (Helmer et al., 2016).

In what follows, the authors will approach the ethics of neuroenhancement from the perspective of the emerging field of *technoethics*—a term that has been coined by Mario Bunge (1977) in the late 1970s. Ever since, this fascinating and growing interdisciplinary research area aims at exploring ethical aspects of technology and its impact on society. Technoethics has been defined as dealing “with human processes and practices connected to technology which are becoming embedded within social, political, and moral spheres of life. It also examines social policies and interventions occurring in response to issues generated by technology development and use. This includes critical debates on the responsible use of technology for advancing human interests in society. To this end, it attempts to provide conceptual grounding to clarify the role of technology in relation to those affected by it and to help guide ethical problem-solving and decision making in areas of activity that rely on technology” (Luppigini, 2008). One of the key areas of technoethics is ‘biotech ethics’; a subfield that is concerned with, “the use of biotechnologies [that] spread rapidly to medical research, health care, and industrial applications” (Luppigini, 2009). This key area of technoethics involves analyzing pressing ethical issues that arise from the application of neuroscientific research leading to growing possibilities of artificially enhancing human cognition. We have seen an unprecedented growth in medical technologies such as magnetic resonance imaging (MRI) and associated research investigating the function and anatomy of the human brain. Following something akin to Moore’s law, this will only continuously increase in the future. Therefore, the examination of technoethics and more specifically, biotech ethics are becoming increasingly important and relevant to society.

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