CHAPTER 6

Cognitive Enhancement and Moral Bioenhancement: Becoming Smarter and More Moral

Technology of Cognitive Enhancement

Perhaps you remember taking the Scholastic Aptitude Test (SAT), a test necessary for college application in the United States, or scrambling to pump up your Grade Point Average (GPA). Would it not have been great to have a cognitive enhancement pill that could add a couple of hundred points to your SAT score or boost your GPA? Maybe yes, maybe no.

As we proceed, we place radical cognitive enhancement in the larger context of traditional methods for cognitive enhancement. Extreme cognitive enhancement, together with artificial intelligence (AI), may necessitate moral enhancement to ensure that we use our increased intellect for good. As we increasingly overcome what have been considered natural cognitive limits, it is imperative to consider the theological and ethical implications.

How We Make Ourselves Smarter

Cognitive enhancement is not new. We work hard in many ways to make ourselves and our children smarter. Mostly, we promote behavioral methods for cognitive enhancement, such as good study skills and education. Long standing education techniques are continuing to be improved and utilized. Mental or psychological training, such as that provided by guided imagery, mindfulness exercises, and mnemonics and other memory techniques, have long been used to improve our mental abilities. Learning another language, recreation, eating well, appropriate sleep, and sports psychology techniques also contribute. However, we have not been satisfied with these behavioral techniques, perhaps because they require time and hard work. We want more. And we want more for less effort.

Leading futurists Nick Bostrom, director of the Oxford University Future of Humanity Institute, and his colleague, Anders Sandberg, define cognitive
enhancement as using artificial means to optimize learning and memory systems.\textsuperscript{1} Many cognitive enhancers also augment our bodies and, as we see in a later section, even our moral selves. In an information society, increasing focus is put on cognitive capacity and information access and analysis.

Experts point out that cognitive enhancement is complex, with several factors needing to be considered.\textsuperscript{2} As we will see, there are many methods of cognitive enhancement. Also, cognition is not one thing. It is a complex assemblage of capabilities, including attention, memory, processing speed, creativity, and cognitive flexibility. Complicating things further is the role of social acceptability. Consider, for example, the use of pharmaceutical drugs that people procure in ways other than via a prescription from their doctor.

Despite the complexities and complications, people have always attempted to become smarter and that attempt is now needing assessment, religious and otherwise, as powerful options for cognitive enhancement are being developed. Before too quickly judging radical cognitive enhancement, consider the wide use of night-long cognitive enhancements prior to big university exams. Street names for these cognitive stimulants, long used, are coffee and cola. Jolt, a caffeine and sugar intense cola, became available in 1985, marketed to students and young professionals with the slogan, “All the sugar, twice the caffeine!” Caffeine and sugar (and Jolt equivalents such as Red Bull) are still very much in use, complemented by today’s array of technological aids like smart phones, calculators, and internet, all of which extend our cognitive reach.

As with many enhancements we will discuss, genetic engineering will almost assuredly play a role in cognitive enhancement. As it becomes more common to screen embryos for genetic markers of disease, some parents are going to want to screen for markers associated with IQ. Manipulating the genes of mice has already greatly improved their cognitive abilities. The transferability of research from mice to humans will put genetics center stage in the cognitive enhancement debate. Reducing cognitive decline due to aging may be viewed favorably as therapeutic, but drastic enhancements in IQ, beyond what is considered normal, will be controversial.\textsuperscript{3} In addition to genetics, we now turn to a number of other interventions to make us smarter.

\textit{Smart Drugs and Nootropics}

Methylphenidates, like Adderall and Ritalin, are stimulants that sharpen cognitive focus and facilitate alertness, memory, and wakefulness, although is it

\textsuperscript{1}Nick Bostrom and Anders Sandberg, “Cognitive Enhancement: Methods, Ethics, Regulatory Challenges,” \textit{Science and Engineering Ethics} 15 (2009): 311–41. https://doi.org/10.1007/s11948-009-9142-5.

\textsuperscript{2}M. Dressler, et al., “Hacking the Brain: Dimensions of Cognitive Enhancement,” \textit{ACS Chemical Neuroscience} 10, no.3 (March 20, 2019):1137–1148.

\textsuperscript{3}“Should We Pursue Genetic Cognitive Enhancement?” \textit{The Hastings Center News} (April 3, 2018). https://www.thehastingscenter.org/news/enhanced-human-risks-opportunities/.
questionable whether these stimulants actually improve academic performance. Methylenidates help restore an imbalance of neurotransmitters in people with attention deficit hyperactivity disorder (ADHD). Because these drugs are misused by people without ADHD, they often end up backfiring and actually hamper good thinking after the negative and positive effects are taken into account. Evidence so far indicates that methylphenidates do not improve academic performance. Motivations for taking these “study drugs” include coping with low self-esteem, a need for external validation, having few sources of meaning in life, insufficient parental attention, and mental health issues, including psychosis.

Stimulants also improve reflexes and blunt appetite, which can be (dangerously) attractive to people who wish to lose weight. A recent study found that more than five percent of North American university students use ADHD treatment drugs, such as Adderall or Ritalin, to help them study, in spite of potential cardiac problems, addiction, and increased anxiety. The use of study drugs for non-medical reasons is growing at Canadian and United States universities.

Other pharmaceuticals sometimes used to facilitate faster and better thinking include modafinil (a common trade name is Provigil), which is often prescribed to people with sleep disorders such as narcolepsy. What is sometimes missed by off-label and self-prescribing users are the potential harmful side effects, including headaches and insomnia. Most people can take modafinil only for a very limited time before the risks outweigh the benefits. Antidementia drugs, such as acetylcholinesterase inhibitors and memantine, are also theorized to have cognitive benefits for people without dementia, but that is controversial and scientifically unproven. The value some people place on any means to cognitively enhance is of serious concern to medical professionals, since self-prescribed usage of these drugs can be very dangerous.

Nootropics (Greek for “mind turning”) are widely used smart drug supplements. “Natural” cognitive enhancement is a big industry, with internet advertisements for a host of supplements, such as omega-3 fatty acids, ginkgo biloba, Lumalta, and the supposed brain booster pill Geniux. Claims that Geniux can significantly boost cognitive enhancement have been debunked.

4 Dressler et al., “Hacking the Brain.”
5 D. D. Abelman, “Mitigating Risks of Students Use of Study Drugs Through Understanding Motivations for Use and Applying Harm Reduction Theory: A Literature Review,” Harm Reduction Journal 14, no. 68 (2017). https://doi.org/10.1186/s12954-017-0194-6.
6 K. R. Holloway, T. H. Bennett, O. Parry, and C. Gorden, “Misuse of Prescription Drugs on University Campuses: Options for Prevention,” International Review of Law, Computers & Technology (2013) 27:324–34. https://doi.org/10.1080/13600869.2013.796707; and C. R. Skidmore, E. A. Kaufman, and S. E. Crowell, “Substance Use Among College Students,” Child and Adolescent Psychiatric Clinics in North America 25 (2016): 735–53. https://doi.org/10.1016/j.chc.2016.06.004.
7 Nayef Al-Rodhan, “The Runaway Train of Cognitive Enhancement,” Scientific American, (December 9, 2019). https://blogs.scientificamerican.com/observations/the-runaway-train-of-cognitive-enhancement/.
with refund cheques issued by the United States Federal Trade Commission.8 Despite the debunking of Geniux, numerous other supplements, with similar claims about improved focus, memory and energy, are being promoted, often without scientific validation.

**Brain Biohacking**

Neuroscience developments in brain stimulation techniques have generated much interest among athletes and others who want to overcome mental messages that inhibit physical performance. For example, transcranial direct current stimulation (tDCS) improves endurance by making it easier to overcome mental messages regarding pain or exhaustion that would otherwise encourage the athlete to stop. tDCS is rumored to have been used in past Olympic Games.9 Harms are associated with tDCS, including seizures, headaches, and possibly changes in thought patterns (e.g., personality),10 yet many high-level athletes want anything that might give a competitive edge.

Many other situations, besides sports competitions, lend themselves to a desire to work through pain or tiredness. Some claim that tDCS can also improve overall thinking. Search up tDCS, and many advertisements for brain stimulating devices—even travel sized!—show up. One website boasts:

> tDCS can increase cognitive performance on a variety of tasks, depending on the area of the brain being stimulated. Scientific studies have shown that tDCS has the ability to enhance language and mathematical ability, attention span, problem solving, memory, and coordination. In addition, tDCS has also been documented as having impressive potential to treat depression, anxiety, PTSD, as well as chronic pain.11

While these more enthusiastic claims about tDCS are debated, there is increasing scientific evidence that functional magnetic resonance imaging (fMRI) neurofeedback may increase attention and visuospatial memory.12 Another low-risk brain stimulation technique is electroencephalograms (EEGs). EEGs are used, for example, to stimulate an athlete’s motor learning and monitoring motor function through the reading of biomarkers that predict athletic performance.13 These biomarkers provide feedback on sleep, stress levels, focus, and impulse control.

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8 https://www.ftc.gov/enforcement/cases-proceedings/refunds/geniux-refunds.
9 A. Hutchinson, *Mind, Body and the Curiously Elastic Limits of Human Performance* (New Zealand: HarperCollins Publishers, 2018).
10 L. Y. Cabrera, E. Y. Evans, and R. H. Hamilton, “Ethics of the Electrified Mind: Defining Issues and Perspectives on the Principled Use of Brain Stimulation in Medical Research and Clinical Care,” *Brain Topography* 27 (2014): 33–45.
11 “The Brain Stimulator: Stimulate Your Life.” https://thebrainstimulator.net/what-is-tdcs/.
12 Dressler et al., “Hacking the Brain.”
13 G. Cheron et al., “Brain Oscillations in Sport: Toward EEG Biomarkers of Performance,” *Frontiers in Psychology* 7, no. 246 (2016). https://doi.org/10.3389/fpsyg.2016.00246.
Our Brains on AI

If we choose not to tamper with our own physiologies, AI is the most obvious and fast developing way to augment thinking. AI offers many health benefits, such as diagnosing sleep disorders from home and monitoring cardiac performance with wearable technology. Other examples include electronic memory aids and hand-held memory-enhancing digital games. The list is expanding.

Developments are occurring regularly in the field of neurotechnology. Notably, brain-computer interfaces are increasingly enabling people to control devices with their brains. Building on the work of pioneers like Kevin Warwick, CTRL-Labs is a United States wearable tech company building technology that allows for control of digital devices with the brain. Facebook acquired CTRL-Labs and joined it with Facebook Reality Labs, giving the effort enormous funding. Another neurotechnology company, Neuralink, is backed by billionaire Elon Musk, an indication that neurotechnology is supported by powerful individuals and organizations.

The Internet of Bodies (IoB) is an extension of the Internet of Things (IoT), which is comprised of interrelated mechanical and digital machines transferring data without regular human assistance. The IoB is connected to the IoT via devices implanted, ingested, or worn. Basically, the human body is used as a data platform. The IoB can augment individual cognitive abilities by giving us more information about ourselves and others and by interpreting that data.

For example, smart pills with electronic sensors and computer chips collect data about internal organs as they make their way through the digestive tract. Pacemakers now have Wi-Fi capacity and send data about heart function to a computer. Biohax, a Swedish bioengineering company, implants microchips (biochips) into bodies to enable people to enter their workplace without an external key and to pay for purchases simply by waving their hand. The increased interfacing of humans with machines supplements our cognitive capacities by adding machine collected IoB data and by applying a fast-growing body of algorithms through which to interpret this data.
As we greatly enhance our cognitive reach, our capacities for both good and bad are amplified. Given the potentially nefarious outcomes perpetrated by superintelligent machines or radically cognitively-enhanced and supplemented humans, a reasonable fear is that unless we become more moral and collectively committed to doing good, we may act on our increasing capacity to do great harm.

Moral enhancement may be a necessary complement to the increasing potency of cognitive enhancements. Ingmar Persson and Julian Savulescu, Director of the Oxford Uehiro Centre for Practical Ethics, published *Unfit for the Future: The Need for Moral Enhancement*, a book regarded as the pivotal text on moral enhancement ethics. Most scholars responding to their arguments see the moral enhancement project as too complex, fraught with danger, and unlikely to be implemented. But the fact that their book has been central to most analyses of moral enhancement suggests that Persson and Savulescu struck a deep chord.

Persson and Savulescu argue that we may be able to increase our capacities for altruism and justice and that we must do so or risk a cataclysmic fate. Without a stronger moral compass and inclination, we will be at greatly increased risk of mass destruction. Consider, for example, autonomous weapons, such as self-flying drones with sniper sensor devices and facial recognition software that tell these drones what skulls to penetrate and how to evade bullets. These unstoppable “slaughterbots” are not merely science fiction. This can be done now by integrating technology we already have in miniature form.

Our moral historical track record is not good. Millions of people have been bombed, genocides have unfolded without adequate intervention, and people continue to be persecuted simply for being different. The world displayed plenty of altruism during the COCID-19 pandemic, but the pandemic also showed how territorial, greedy, and self-centered people can be. Perhaps the answer does lie in making humans more moral or more virtuous. But, how do we do this? This “how” question is what elicits strong reactions and complicates the ethical project.

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18 Much of the material in this chapter on moral bioenhancement is an adaptation from Tracy J. Trothen’s publications, including “Moral Bioenhancement Through An Intersectional Theological Lens: Refocusing on Divine Image-Bearing and Interdependence,” *Religions* 8, no. 5 (2017): 1–14, 10.3390/rel8050084; and “Moral Bioenhancement From the Margins: An Intersectional Christian Theological Reconsideration,” in *Religion and Human Enhancement: Death, Values, and Morality*, eds. Tracy J. Trothen and Calvin Mercer (Hampshire, UK: Palgrave Macmillan), 245–263.

19 Ingmar Persson and Julian Savulescu, *Unfit for the Future: The Need for Moral Enhancement* (Oxford, UK: Oxford University Press, 2012).

20 “Slaughterbots,” last modified November 12, 2017. https://www.youtube.com/watch?v=9CO6M2HsoIA.
How We Make Ourselves More Moral

Traditionally, we have relied on communities and families to instill a moral compass in each person. Education and formation of a moral code through hands-on experience, reading, and debriefing after moral struggles have been some of the primary ways we have engendered and cultivated morality. Historically, religious communities have played a key role in instilling a moral compass and promoting the virtues. The religious traditions have long held that discipline, study, and participation in a faith community are vital to the development of morality.

Critics rightly wonder about the capacity of neurobiological agents to make us more virtuous, even potentially taking the place of communities, families, and religion. The development of a moral, virtuous person has long been understood as requiring time and discipline. Some view a quick fix dispensed at a biological level as repugnant, seemingly reducing humans to mere machines to be repaired. Indeed, moral enhancements are usually referred to as moral bioenhancements, because most interventions are biomedical. If morality cannot be reduced to biomedicine, then these bioenhancements have limited value. However, some see this limited value as potentially very important, and others do believe that morality can be reduced to biomedicine.

In the coming decades, conscience apps and morality software may well constitute a bridge between traditional methods of moral development and the more radical interventions being contemplated.21

Morality in a Pill?

Morality is influenced by neurobiology and so, potentially, can be affected by drugs and other interventions that change our nervous system. For example, there is behavioral, genetic, and neuroscientific evidence that aggression has a biological basis.22 Such a finding begins to lay the foundation for developing moral bioenhancement programs. Numerous pharmaceuticals are already candidates for such programs.

The drug Ritalin reduces impulsive aggression. Ritalin can also sharpen one’s ability to focus and problem solve more deliberately, even about ethical questions. The drug Provigil (modafinal) may increase prosocial behaviors, such as empathy, cooperation, trust, and concentration. The hormone serotonin increases aversion to harming others and increases empathy. The hormone oxytocin increases prosocial behaviors, such as empathy, cooperation, and trust.

In some situations, we may consider more aggression to be morally better. In highly competitive sports, for example, confident aggression is often seen as

21 James Hughes, “How Conscience Apps and Caring Computers will Illuminate and Strengthen Human Morality,” in Intelligence Unbound: The Future of Uploaded and Machine Minds, 26–34, eds. Russell Blackford and Damien Broderick (West Sussex, UK: Wiley Blackwell, 2014).
22 T. Douglas, “Moral Enhancement,” Journal of Applied Philosophy (2008) 25: 233.
morally virtuous in athletes, so long as it does not lead to undue violence. So, the heightening of aggressive impulses may be morally enhancing, and we can indeed heighten aggressive impulses with central nervous system stimulants, such as methylphenidates, ephedrine, and amphetamines.

These pharmaceuticals carry risks. Oxytocin can make people more trusting, but it is not advisable to be more trusting in all situations. Oxytocin increases altruistic behavior and empathy but only towards people we see as close to us or as kin. So, oxytocin may bring us closer to kin but might make us more distant from and suspicious of others. Maybe increasing some prosocial behaviors and decreasing aggression does not in total enhance morality in all situations.

**Brain Stimulation**

Currently, pharmaceuticals are the most promising avenues for moral enhancement. However, brain stimulation is also a pathway. Brain stimulation was developed mostly for the treatment of some diseases, including Parkinson’s Disease and major depression. Transcranial direct current stimulation was designed for the treatment of major depression, but tDCS could also be used as a moral bioenhancement since it may increase cooperation and neuroplasticity, making it easier in general to learn and, in particular, easier to learn prosocial behaviors.

Whatever moral benefit comes with brain stimulation, as we pointed out earlier, that benefit is not risk free. Deep Brain Stimulation (DBS), Transcranial Stimulation (TMS), and tDCS all can cause seizures or headaches. Perhaps more concerning, they may affect personal identity in unforeseen ways by changing thought patterns. Personality change certainly constitutes a major risk.

**Genetic Modification**

Genetic modification technologies will likely be marshalled to increase or decrease certain behaviors or thinking patterns in the direction of greater morality. For example, a protein called the Downstream Regulatory Element Antagonistic Modulator (DREAM) is associated with how we experience pain sensations. The protein could theoretically be edited out to increase pain toleration by blocking or dampening pain sensations.

On first glance, pain may not seem to have much to do with morality. But pain sensations can tell us to stop a behavior causing the pain or to get help. Sometimes our experience of physical pain helps us learn what is harmful to others.

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23 A. Piore, “A Shocking Way to Fix the Brain,” *MIT Technology Review* (2015). Accessed February 3, 2017. [https://www.technologyreview.com/s/542176/a-shocking-way-to-fix-the-brain/](https://www.technologyreview.com/s/542176/a-shocking-way-to-fix-the-brain/).

24 A. Miah, “The DREAM Gene for the Posthuman Athlete: Reducing Exercise-Induced Pain Sensations Using Gene Transfer,” in *The Anthropology of Sport and Human Movement: A Biocultural Perspective*, eds. R. R. Sands and L. R. Sands (Plymouth, UK: Lexington Books, 2010), 327–341.
ourselves and to others. Without pain sensations, we are at greater risk of harming ourselves and of being insensitive to and unaware of pain others experience. From this perspective, editing out the DREAM gene would be morally detrimental. Yet, from another perspective, the reduction of pain could embolden us to pursue worthy, albeit physically demanding goals, such as working harder to win an Olympic medal. In a military context, soldiers could better overcome injury or exhaustion and more effectively defend and protect others.

Another example of possible future moral enhancement using genetic modification is the reduction or even elimination of fear and traumatic memory formation. The military, for example, would certainly have interest in such neuroscience research. Such a moral bioenhancement could also function as an affective enhancement, to be discussed in the next chapter.

Robotics

We are extending, or supplementing, our moral and affective reach through AI. AI robots now provide comfort in hospitals and can even perform some duties provided by clinical professionals. During the COVID-19 pandemic, “robot pet therapy” was used to comfort elderly hospital patients who had very limited physical contact with their family members and friends. Pepper is a robot with a humanoid appearance created by Softbank Robotics in Tokyo, Japan. The robot interacts with patients and their families at Humber River Hospital in Toronto. Equipped with sensors and cameras, Pepper has the ability to detect emotions and respond to people in prosocial ways. Pepper’s prosocial example may help teach moral behavior, in addition to improving our emotional well-being. AI is providing us with new ways to express the virtue of caring.

Robots seem to have much to offer, but there may be limitations having to do with relationship and human touch. As the COVID-19 pandemic has shown us, people in pain and frightened for their lives and their loved ones, want human touch and human presence. Spiritual distress heightens our need for physical human contact and accompaniment. A robot such as Pepper may be a helpful moral and emotional adjunct to a person, without replacing the human agent.

25 M. N. Tennison and J. D. Moreno, “Neuroscience, Ethics, and National Security: The State of the Art,” *PLOS* (2012). http://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1001289.; and R. K. Pitman et al., “Pilot Study of Secondary Prevention of Post-Traumatic Stress Disorder with Propranolol,” *Biological Psychiatry* 51, no.2 (2002): 189–192.

26 Kate Knibbs, “There’s No Cure for Covid-19 Loneliness, but Robots Can Help,” *Wired Magazine* (June 22, 2020).

27 Corinne Purtill, “The Robot Will Help You Now: How They Could Fill the Staffing Gaps in the Eldercare Industry,” *TIME Magazine* (November 4, 2019).
Empathy Labs

Ongoing research suggests we can learn empathy to at least some degree, developing increased sensitivity to experiences and emotions of others. Altruism, which is closely related to empathy, is one of the two main virtues promoted by Persson and Savulescu in their argument for moral enhancement. Simply put, altruism is about selfless actions directed at the well-being of others, and a significant dimension of empathy is the ability to understand how someone might be feeling in a given situation. Empathy can help, and may sometimes be necessary for, people to behave altruistically. Experiential programs, such as role-playing and simulation exercises, are emerging as the most effective ways to teach the cognitive domain of empathy. Empathy “labs” have used such teaching strategies with encouraging results.

It is thought that empathy has three domains: cognitive, affective, and behavioral. Of the three, the most success has been in teaching cognitive empathy, “the ability to know and understand that other people have a diversity of perspectives that are informed by thoughts and emotions that may be similar to or different from our own.” These new and emerging teaching techniques are non-biological moral enhancers.

As is likely becoming apparent, enhancement categories sometimes overlap, because different aspects of being human cannot be neatly separated. One of these overlaps is between moral and spiritual enhancement. Spirituality is associated with increased empathy, compassion, and altruistic behavior toward strangers. Unlike oxytocin, increased spirituality does not heighten altruistic behavior and empathy only towards people who we see as close to us, such as friends and kin, but also towards strangers. So, spiritual enhancement means may also be morally enhancing. We address spiritual enhancement in the next chapter.

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28 Linus Vanlaere, Trees Coucke, and Chris Gastmans, “Experiential Learning of Empathy in a Care-Ethics Lab,” *Nursing Ethics* 17, no. 3 (2010): 325–336; Linus Vanlaere, Madeleine Timmerman, Marleen Stevens, and Chris Gastmans, “An Explorative Study of Experiences of Healthcare Providers Posing as Simulated Care Receivers in a ‘Care-Ethical’ Lab,” *Nursing Ethics* 19, no. 1 (2012): 68–79.

29 G. Ançel, “Developing Empathy in Nurses: An Inservice Training Program,” *Archives of Psychiatric Nursing* 20, no. 6 (2006): 249; Vanlaere, et al., “An Explorative Study,” 70; and S.A. Batt-Rawden, M.S. Chisholm, B. Anton, and T. E. Flickinger, “Teaching Empathy to Medical Students: An Updates, Systematic Review,” *Academic Medicine* 88, no. 8 (2013): 1171.

30 Batt-Rawden et al., “Teaching Empathy,” 117.

31 Tracy J. Trothen, “Moral Bioenhancement Through An Intersectional Theo-Ethical Lens: Refocusing on Divine Image-Bearing and Interdependence,” *Religions* 8, no. 5 (2017): 1–14. 10.3390/rel8050084.

32 Laura Rose Saslow, et al., “The Social Significance of Spirituality: New Perspectives on the Compassion–Altruism Relationship,” *Psychology of Religion and Spirituality* 5 (2013): 201–18.
Religious Issues

Religions Agree on the Goals

Wisdom

Intellectual development is important in all religions. Although some more than others, every religion has a long philosophical and intellectual history. Teaching and learning are central missions of temple, church, mosque, and ashram. Most religious leaders are charged with a teaching mission.

Islam, for example, welcomes science. The Prophet Mohammad called scholars the heirs of the prophets, and it is obligatory for every Muslim to acquire knowledge. The proviso is that scientific knowledge, as with any knowledge, must help to bring one closer to God through the pursuit of good works that reflect the valuing of each person. While there are plenty of instances, in past and present times, of the monotheistic religions resisting science in favor of religious ideology, all religions to a significant degree, monotheistic and karmic, have played a role in support of intellectual and scientific enterprises.

It is important to distinguish general knowledge from wisdom, a very different and special kind of knowledge. “Wisdom” books actually constitute a genre of literature in the ancient Near East, the cultural context giving birth to the monotheistic religions. The “high” or philosophical wisdom books teach deep truths about perennially difficult topics, such as suffering, virtue, and the meaning of life. One of the highest Israelite virtues, wisdom, is personified as a righteous woman in ancient Jewish scriptures. In Buddhism, wisdom that allows one to see the true nature of things is liberating.

So, wisdom in the religions, which are sometimes called the “wisdom traditions,” is certainly not reduced to intellectual attainment. Wisdom goes far beyond cognitive abilities like memory and processing speed and far beyond the accumulation and processing of data. Wisdom entails insight, judgment, and self-knowledge. Drawing upon the chapter, “Radical Human Enhancement and Ethics,” wisdom, revered in the religions, entails self-awareness and self-reflexivity. Wisdom informs good ethics.

Morality

The religions also agree on the importance of living a moral life. They all articulate the particulars in varying ways, and frame their moral codes differently, but there is an interesting similarity among the religions in this regard. They all assign importance to being moral in the world. The theme of compassion, animating a moral life, runs through the sacred texts and teachings of the religions.

The ten commandments are central to Judaism and Christianity. In the Christian tradition, it is believed that Jesus knew the ten commandments,

33 Al-Kulayni, vol.1, 39.
34 Mohammad-Baqer Majlesi, Bihar al-Anwar, vol.1, 177.
embraced them, and gave them his own interpretation. The commandments value life, property, truth, and commitment. Shi’a Islam, a major branch of Islam, teaches the principle of Adl (Arabic, “justice”), which includes the conviction that God acts based on a divine design or plan and that God gives people the necessary instruction to know the difference between good and bad and to choose good. Jurisprudent schools of thought in the Sunni Muslim branch differ, but they all agree the believer is obligated to a moral code that guides behavior.

Hinduism instructs the faithful to follow the yamas, the five abstentions. Do not harm, lie, steal, indulge, or covet. The five Hindu niyamas, the five observances, are purity, contentment, discipline, study, and commitment to God. Buddhism’s eightfold path includes right speech, effort, and conduct. Buddhists love lists, and right conduct includes the five precepts of refraining from killing, stealing, lying, unchastity, and intoxication.

Driving the moral energy of the religions are love and compassion. The monotheistic religions and the karmic ones generally unite in giving attention to compassionate service to others.

How to Get There

Traditionally, wisdom and morality are achieved through study of sacred texts and doctrinal training, starting ideally at an early age and continuing through adulthood. Religions tend to be family-oriented traditions, and religious training also, ideally, occurs partly in the home. The monastic traditions, which some religions have, are exceptions to the family orientation.

While every active religious follower is trained in wisdom and moral formation, religious leaders get special and extended training. The religions and the denominations within the religions have different educational standards and protocols. However, they generally value leaders having knowledge of sacred texts, doctrine, ritual, and practice. In Hinduism and Buddhism, the guru-disciple, i.e., the teacher-student, relationship is central to maintaining the integrity of the tradition. This teacher-student relationship is absolutely essential in traditional Zen Buddhism.

The point we are making is that much time and effort goes into transmitting wisdom and forming moral character in the religions. In this chapter we have seen that radical cognitive and moral enhancement potentially can be at least partially achieved without the time and effort needed in the past. Technology and pharmaceuticals are likely to offer society the option of cognitive enhancement, in addition to traditional education delivery systems. Smart pills and moral bioenhancements likely will be available to multiple segments of society, including the religions.

There is, of course, a question about how effective cognitive and moral enhancements will be. If they prove effective, a follow-up question for the religions is whether the wisdom, knowledge, and morality instilled by the pill or brain stimulation is the same as that achieved through long, disciplined study
and expert guidance from religious leaders, or if these enhancements might be helpful supplements to religious programs and formation. Our goal here is to describe the issues likely to be faced by the religions, not to answer the questions.

Another issue for the religions to consider is the importance of effort. In the karmic religions, good effort helps determine one’s status in the next rebirth. If effort is effectively eliminated with a pill, that poses an interesting question about the nature and role of karma. Right effort is one of the tenets of the Buddhist eightfold path. Perhaps Buddhism, and the other religions, will determine that discipline and effort are essential features of the journey to wisdom and a moral life. If so, the religions may reject the quick fix, shortcut enhancement. Or, maybe the religions will see these radical enhancement possibilities as opportunities to achieve wisdom and morality quicker, enabling followers to more faithfully and effectively live the devout life.

It is important to understand that we are only at the beginning of cognitive and moral enhancement technological possibilities. The pills and brain stimulation methods today will likely look primitive decades from now. For example, perhaps at some point we will be able to generate a neuro-biomedical profile of each person, informing how best to adjust certain neurotransmitter and other biochemical levels more optimally for each person, and to select what virtues to enhance based on each individual’s particular needs. Buddhist transhumanist James J. Hughes suggests this.\(^{35}\) So, the religions, and society, may not need to decide for or against a particular moral bioenhancement in general but, rather, for or against a particular moral bioenhancement for each person.

Finally, if the religions utilize technology to advance their teaching and moral missions, the religions will need to critically examine that technology. Importantly, AI programmers employed by leading technology companies are overwhelmingly not people of color and do not have first-hand experience of what it is like to live with a skin color other than white-appearing.\(^{36}\) If AI is partly informed by racialized attitudes, then we can expect that AI will amplify already existing racialization. We will revisit this issue in the ethics section of this chapter.

Self-reflexivity shows us that our context and embodied experiences have a big impact on how we see things or do not see things. So, while AI may help us to make better use of our existing knowledge and to develop more knowledge, AI may also increase the disadvantages experienced by marginalized

\(^{35}\) James J. Hughes, “Ancient Aspirations Meet the Enlightenment,” in Religion and Human Enhancement: Death, Values, and Morality, eds. Tracy J. Trothen and Calvin Mercer (Hampshire: Palgrave Macmillan, 2017).

\(^{36}\) Stephanie Dinkins and Charlton Mellwain, “Coding While Black: Artificial Intelligence, Computing, and Data in a Racialized World,” Initiatives Emerging Leaders Program Blog Humanizing Data Review (New York University, 12 March 2018). https://urbandemos.nyu.edu/2018/03/12/coding-while-black-artificial-intelligence-computing-and-data-in-a-racialized-world/. https://urbandemos.nyu.edu/2018/03/12/coding-while-black-artificial-intelligence-computing-and-data-in-a-racialized-world/.
groups. Or, it could be that some cognitive enhancements will improve creative thinking and will help us to better consider a wide variety of perspectives. The principle of self-reflexivity means that context and embodied experiences impact our perspectives. The religions will want to ensure the therapies and technologies they employ for religious goals reflect values congruent with religion.

**The Theological Continuum**

As with most enhancements, there will likely be a number of approaches and positions taken by religious adherents, with regard to the potential usage of cognitive and moral enhancements. Given the many branches and denominations in each religion, and many followers, we will surely find varying assessments of cognitive and moral enhancement. Referring back to the theological continuum in the chapter, “Transhumanism, the Posthuman, and the Religions,” more conservatives may tend to reject enhancement technologies, while more liberals may lean toward acceptance.

Conservatives are traditionalists, tending to do things as they have always been done. Given the central role of family and religious institutions in the training of children and adult converts, conservatives may find it difficult to hand these tasks over to what they may interpret as secular, science-based methods. Conservatives may see the use of external substances, such as pharmaceuticals, as unacceptably tampering with God’s good creation. It may be that over time, some of these enhancements become accepted as normal among conservatives, but studying holy scripture and the faith community’s doctrines probably will remain a central way of becoming smarter, wiser, and more virtuous. Following these habits and disciplines, it is believed, will help conservative followers get into heaven after death in the monotheistic religions and reborn into a better status in the karmic religions.

Liberals will certainly have reason to be wary, but on the matter of tradition, they tend to be revisionists, open to science and willing to utilize modern methods, replacing old ways that no longer work well. However, liberals will have other considerations, such as fair access, and distributive and social justice, that could prompt them to resist these enhancements, as well as enhancements explored in other chapters.

We explained how wisdom is distinguished from the mere learning of facts or information. Cognitive enhancement could be useful in the pedagogical mission of the religious institutions. Moral enhancement could be useful to the religions as well. But we can anticipate that the religions may choose to reserve the teaching of the deep wisdom of the religion for parents and trusted leaders. We are speculating on all these possibilities. Radical cognitive and moral enhancements are still largely in the future, so we will see in the coming years how the religions assess and utilize, or not, these technologies.

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37 A range of positions can be found, for example, in this theme issue of *Theology and Science* 16/3 (2018), devoted to “Moral Enhancement and Deification through Technology?”
An oft-told biblical narrative in the Jewish and Christian traditions is the story of the Tower of Babel in the Hebrew Bible’s book of Genesis.38 Traditional interpretation holds that the human beings acted irresponsibly in the Garden of Eden,39 Cain killed Abel,40 and the wickedness was such that the human community brought upon itself a catastrophic flood.41 In the tower story, perhaps out of fear of being “scattered abroad” or because of the narcissistic impulse to “make a name for ourselves,” the human community proposes to use their available technology to build a tower “with its top in the heavens.”

This old story can lend itself to various interpretations, one of which is that the story depicts the creature’s attempt to “be like God,”42 to use a phrase from an earlier story in Genesis. Or, to put it more bluntly, to be God. In this interpretation, the story seems particularly directed at those with the most social and economic power and who have the capacity to assert and implement that power in widespread political ways. Striving to reach one’s potential—to fulfill one’s God-given purpose—is one thing and is quite appropriate. However, in the monotheistic theological model, from which the Tower of Babel story comes, human beings are a part of the created order. They are not God. They are not omniscient and should not strive to be so. There are appropriate limits to who and what human beings are meant to be.

Seeing the tower being built, God said, “This is only the beginning of what they will do; and nothing that they propose to do will now be impossible.”43 In light of some of the dazzling enhancement technologies under way, such as the cognitive and moral ones addressed in this chapter, this old text about everything being possible takes on a new relevance. The attempt of the more systemically powerful humans to build the tower to heaven did not end well. The people’s language was confused, and they were scattered abroad over the face of all the earth. Perhaps a warning is found here for those who desire to know and understand everything via cognitive enhancement and achieve divine moral perfection with pharmaceutics.

In a similar vein, the religious notion of sin may not be a quaint, outdated idea for the world of radical enhancement technology. The notion that human beings have tendencies toward self-serving, even hateful and hurtful, behavior can be a caution to society about rushing uncritically into every new technology. It is certainly appropriate for the religions to take human capacity for depravity, however interpreted, seriously as these therapies and technologies grow.

38 Genesis 11:1–9
39 Genesis 3.
40 Genesis 4.
41 Genesis 6–9.
42 Genesis 3:5.
43 Genesis 11:6.
While caution is in order, the religions also have long traditions and religiously based moral imperatives to do good. Improved cognition could theoretically help religious followers do even more good. The challenge religious followers will face is being faithful to their religious commitments in the context of deciding what role enhancement technologies can and should play.

Perhaps charting a path many religious followers will take, Persson and Savulescu contend that if moral bioenhancements such as oxytocin, which enhance only in-group empathy, are to be effective, traditional methods of education must continue: “moral bioenhancement would have to go hand in hand with reasoning which undercuts race, sex, etc. as grounds for ... differentiation.” Moral bioenhancements are very unlikely to cut out the need for traditional moral education and formation, but moral bioenhancements may eventually be able to step up human capacity to be more moral.

**Will Religious Leaders Be Out of Work?**

At risk of being cynical, the role and job security of religious leaders could, conceivably, play a role in how they lead the religions to respond to cognitive and moral enhancement. Religion has psychological and sociological dimensions. And, religion is also about economics. The pastors, priests, imams, and swamis of the religions play central roles in teaching wisdom and guiding the adherents in forming a moral life.

Certainly, most leaders are called to service and committed to their work as a sacred mission. They are also invested in their work as a profession and are usually paid salaries in some form or other. If technology should develop that can accomplish the religious leader’s teaching mission, they are then out of that job. Understandably, there could be resistance to this development. That resistance may be framed theologically or ethically, but the reality is that, consciously or unconsciously, economics could play a significant role.

However, even if cognitive and moral enhancements develop to the point at which we are not as dependent on traditional methods of moral and cognitive growth, presumably religious leaders would still be needed to lead other aspects of faith communities. And, as we suggest above in tandem with Persson and Savulescu, technology enhancements may provide a huge boost but will not likely provide us with all that we need to become more moral and smarter, especially if by smarter we also mean wiser.

**Ethical Issues**

Ethical and religious issues cannot be neatly divided. Faith claims inform how followers act in the world and how they will think about radical enhancements. So, we will see ethics threaded throughout our reflections on religion, and we

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44 Ingmar Persson and Julian Savulescu, “The Evolution of Moral Progress and Biomedical Moral Enhancement,” *Bioethics* 33, no.7 (2019): 816.
will see religious issues threaded throughout our reflections on the ethics of
cognitive and moral enhancement. Remember, too, we are only scratching the
surface of these issues. As always, consider some of the sources provided in the
footnotes if you are intrigued and want to learn more about an issue.

Cognition and Morality: What Exactly Are We Trying to Enhance?

Beyond the potential bad side effects of the interventions, two important ques-
tions loom with cognitive and moral enhancements: What is meant by cogni-
tion, and what is meant by morality? As discussed earlier in this chapter,
cognition involves several domains of ability, and a single enhancement is not—at
least so far—going to enhance all cognitive domains.

It is more complicated than that. It is not even clear that cognition is limited
to the brain. We have body memories. For example, the heart beats faster
before the brain realizes something in the environment is stirring up bad mem-
ories. Perhaps body memory is a cognitive domain. If so, if we enhance the
brain’s capabilities, and leave the body behind, perhaps we are not enhancing
one’s cognition with integrity. Artists and athletes commonly experience their
bodies as leading their brains in artistic and sport activities.

Morality is at least as complicated. Morality is understood in a variety of
ways, including (1) the discipline of being and becoming virtuous, (2) the
capacity to make sound and well-reasoned ethical arguments, and (3) acting in
ways that conform to the virtues. Some theorists focus on how we might
enhance moral behaviors, while others are more concerned with enhancing the
motives behind behaviors.\footnote{45 Douglas, “Moral Enhancement.”} Still others think we can or should enhance universal
virtues, such as restraint, altruism, and inclination toward justice.\footnote{46 Persson and Savulescu, \textit{Unfit for the Future}; and James J. Hughes, “How Moral is (Moral)
Enhancement? Moral Enhancement Requires Multiple Virtues Toward a Posthuman Model of Character Development,” \textit{Cambridge Quarterly of Healthcare Ethics} 24 (2015): 86–95.} Others
are more hopeful that we might enhance cognitive abilities, so that we improve
our capacity for ethical reasoning.\footnote{47 John Harris, “Moral Enhancement and Freedom,” \textit{Bioethics} 25 (2011): 102–11.} Others
are more hopeful that we might enhance cognitive abilities, so that we improve
our capacity for ethical reasoning.\footnote{48 Michael Hauskeller, “The Art of Misunderstanding Critics: The Case of Ingmar Persson and Julian Savulescu’s Defense of Moral Bioenhancement,” \textit{Cambridge Quarterly of Healthcare Ethics} 25 (2016): 153–61.} Your authors believe the main reason
morality is difficult to define is its contextuality. The meaning of doing good
and of virtues, such as altruism and justice, changes a little or a lot depending
on who is interpreting what it means to do good, and the virtues.\footnote{49 D. Gareth Jones, “Moral Enhancement as a Technological Imperative,” \textit{Perspectives on Science and Christian Faith} 65 (2013): 150; Inmaculada de Melo-Martin and Arleen Salles, “Moral Bioenhancement: Much Ado about Nothing?” \textit{Bioethics} 29 (2015): 223–32; and Hauskeller, “The Art of Misunderstanding Critics.”}

Not all prosocial qualities are desirable in all moral situations; there are times
when the moral road is to be aggressive or even violent.\footnote{49 D. Gareth Jones, “Moral Enhancement as a Technological Imperative,” \textit{Perspectives on Science and Christian Faith} 65 (2013): 150; Inmaculada de Melo-Martin and Arleen Salles, “Moral Bioenhancement: Much Ado about Nothing?” \textit{Bioethics} 29 (2015): 223–32; and Hauskeller, “The Art of Misunderstanding Critics.”} For example, you see
a car coming quickly towards someone. Violently pushing them out of the way
may save them from an oncoming vehicle. Consider an all too common bullying situation. When a bully harasses someone, the bully needs to be challenged, not accommodated. Each situation is different, which is a key point addressed by situation ethics and consequentialist ethics, introduced in the chapter, “Radical Human Enhancement and Ethics.”

The virtues we need depend a lot on the situation and on our personal and social identities, as we shall see. We do not all necessarily need the “upping” of all virtues, such as generosity, altruism, empathy, justice, courage, faith, hope, and charity. Some may need prudence first and perhaps only. Prudence is wisdom and good judgement. And, we need the will or motivation to do good. Suffice it to say, for now, that what we mean by cognition and morality influences our understanding of what it means to become cognitively or morally better.

**Values, Virtues, and Self-Reflexivity**

As explained in the chapter, “Radical Human Enhancement and Ethics,” values are those things that are most important to us. Virtues are traits or qualities considered morally desirable. So, a close relationship usually exists between what we see as virtues and the things we value. For example, if faith is perceived as a virtue, then we might value church. Or, if we see altruism as a virtue, we likely value friends and strangers regardless of who they are.

To illustrate, the spouse of one of your authors, Professor Trothen, recently proceeded through the drive-through at a Tim Horton’s, a donut and coffee/tea chain close to the hearts of many Canadians. When he arrived at the window to pay for his steeped tea, he was told that the stranger in the car in front had already paid for him! If instances like this lift your spirits and move you, it may well be that you see altruism as a virtue, and value people and caring actions.

Very often we do not consciously know what we value most and what we see as virtues. Think again about your top five values, from the exercise in the chapter, “Radical Human Enhancement and Ethics.” As discussed in that chapter, our values are at least partly determined by our contexts and our stories. What you value most may well be different from someone in another part of the world or from someone who has not had the same privileges as you, such as running water, electricity, and a stable home. Similarly, not everyone faces the same barriers, such as sexism, gender identity questions, ableism, racialization, and more. All these things affect what we see as most important, and everything in our lives has an impact on our values and on the virtues we learn and see as most desirable.

Because morality is contextual, we do not all need more of every virtue, even if we could target each virtue for enhancement. For example, we understand now that many women tend (but not always!) to be more self-sacrificing and nurturing. If we make someone who is already self-sacrificing, and maybe too
much so, more self-sacrificing and altruistic, they may become a threat to their own well-being by not caring adequately for themselves.

Cognition is also contextual, and different types of cognition are valued differently depending on power patterns. In so-called mainstream North America, rational thought tends to be valued above—and regarded as separate from—relational or emotional ways of knowing. This valuing of rationality is derived from, at least in part, the power disbursal in this part of the world and the binary association of male gender with rational thought and female gender with relational or emotional knowing. So, it will not be a surprise when we talk more about values and cognitive enhancement in the section on justice later in this chapter.

The Therapy—Enhancement Continuum: What It Means to Make Us Better

As we discussed in the chapter, “Radical Human Enhancement Ethics,” the therapy—enhancement continuum is a helpful, although imperfect, guide to considering which enhancements might be considered acceptable or unacceptable. One way religions could weigh in on an enhancement intervention is to judge it unacceptable at the point at which we cease to care for others and the earth and cease to prioritize good works.

Consider a follower of one of the religions who is cognitively enhanced so they can better focus, process thoughts, and think creatively. That, in itself, may be good, but if they are not more caring and concerned for others, or perhaps if they become even less concerned for others, then the enhancement may be judged undesirable or inadequate. Consistent with their values, the religions will likely want increased intellect to be accompanied by an increased capacity and willingness to do good, thereby becoming a better person. Thinking better is no guarantee we will behave better or be better.

Here is a psychotherapeutic clinical example of the above principle. A young man with Asperger’s syndrome who, not atypically for this disorder, tested well above normal on his Wechsler Adult Intelligence Scale IQ test. The youth was being seen for psychological assessment, because he had significantly compromised social skills. As it turned out, the youth’s very high IQ compromised his ability to socially interact with his peers. Although very high IQs do not always pair with lesser social skills, it did in this particular case.

Increasing cognitive intelligence without a commensurate increase in social skills may very well result in an unhappy outcome, and diminished social skills is just one possible unintended negative consequence of significantly increased brain power. It may well be that cognitive enhancement (at least if it is without moral enhancement) leads to a widening gap between our intellectual abilities and our moral wisdom. Given the belief in the intrinsic worth and dignity of all

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50 This example, disguised so the client cannot be identified, comes from your author, Professor Mercer, who has worked as a therapist.
people, fostered by religions generally, thinking better will not necessarily make for better humans or trans/posthumans.

Perhaps good and safe moral bioenhancements can help to make us better people if we use them in conjunction with traditional methods for making us morally better. The word “good” is key. For all the reasons discussed so far, moral bioenhancements are not necessarily going to result in more moral people. As with cognitive enhancements, moral bioenhancements alone are unlikely to be sufficient to make us better. The religious traditions may very well insist that spiritual disciplines and education about self-reflexivity and justice issues must be combined with moral bioenhancements if the bioenhancements are to be effective.

Being human is about being more than a reducible collection of parts to be fixed with enhancement interventions. People are more than enhance-able components and cranial neuro-pathways. Attempts to make us better morally may very well fall short if moral improvement is envisioned as a biochemical task only.

Choice

Who will choose to be cognitively or morally enhanced, and why will they make that choice? If it is a choice to be morally enhanced, we can imagine that most people opting for these enhancements may not need them as much as people who choose not to be morally enhanced. A conundrum! Perhaps we just legislate moral bioenhancements into tap water, much like we did with fluoride. That approach risks taking away people’s ability to consent to becoming, potentially, a different person. It can be argued that authenticity requires that choice be protected, although some might take a utilitarian perspective and claim that the good of the many outweighs the value of preserving the choice to opt out. Deeply held values will play a role in deciding one’s position.

The issue of choice is complicated by the question of whether our choices will still be our authentic choices after we are cognitively and/or morally enhanced. Maybe a morally enhanced person will not want any other enhancements, including those that let them live longer, unless everyone else in the world can have access to those enhancements. That may be admirable, but who is making the choice? Perhaps it is one’s authentic self, but perhaps it is the bioenhancement making the choice, subverting authenticity. We use authenticity here to mean that one’s choices and behavior reflect one’s values and personal integrity. Will it be me making choices after I am cognitively or morally enhanced, or will I lose my authentic self by becoming changed?

Situating this conversation in theological language, will cognitive and moral interventions enhance or diminish the image of God, in the monotheistic

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51 For a thoughtful analysis of the mistaken tendency to see human beings as a series of reducible parts in relation to moral enhancement, see Harris Wiseman, The Myth of the Moral Brain: The Limits of Moral Enhancement (Boston: MIT Press, 2016).
religions, or change one’s status in life, in the karmic traditions? A prominent view among ethicists is that a moral action must be freely chosen and not coerced in order for it to be moral. Ethicist John Harris has argued that we must have the freedom to fail if our actions are to have the potential of being authentically virtuous. Will moral bioenhancements prevent us from freely choosing behaviors?

Consider the example of brain stimulation. TMS is described by Professor of neurology William P. Cheshire as

a useful tool for investigating how specific brain correlates of self-awareness might be altered…. [which includes] an array of cognitive functions important to personal identity—moral reasoning, emotional valuation, decision making, unconscious bias, impulsivity, altruism, empathy, anxiety, fear, deception, belief and spirituality…. TMS can influence assessments of threat or danger signaled by facial expressions. If visual perception and visual processing are subject to influence by technology then so might other brain capacities relevant to one’s perception of others’ or one’s own personal identity.

Brain stimulation may allow us to change ourselves, in the name of enhancement, to such a degree that we become almost unrecognizable.

A case can be made that we can be authentic only if we are not changed too much by technology or pharmaceuticals. Maybe these enhancements are inauthentic short-cuts. Or maybe enhancement technologies can help us become more of who we strive to be. Hughes, a Buddhist transhumanist whom we introduced earlier, argues that some of us have neurological barriers preventing us from being moral in ways that are authentic to ourselves. Perhaps a moral bioenhancement can remove a neurological barrier and allow someone to act in a more altruistic and less aggressive way that is more consistent with their authentic self. If Hughes is right, then such bioenhancements are therapeutic, allowing some people to be more authentically human and true to their “normal” or authentic self. Of course, who decides and how they decide what it means to be authentic is, to say the least, difficult.

Here is yet another conundrum. Are our choices—even without being cognitively or morally enhanced—truly free? Consumers are bombarded by streams of media messages telling us what we supposedly really want. Everyone wants to sell us something, it seems. Maybe moral enhancements will actually let us become more of who we authentically are by overcoming neurological barriers to free choice. Or, perhaps we will cease to make “bad” choices. For the religions, in a heavenly scenario, perhaps moral bioenhancement makes sin a thing.

52 Harris, “Moral Enhancement and Freedom,” 103.
53 William P. Cheshire, “Ethical Implications of Transcranial Magnetic Stimulation for Personal Identity,” *Ethics and Medicine: An International Journal of Bioethics* 34, no. 3 (2018): 135–145.
54 Hughes, “Ancient Aspirations.”
55 Hughes, “Ancient Aspirations.”
of the past. Or not. Human beings are creating these bioenhancements, so it is very unlikely the bioenhancements will be perfect.

**Justice**

Choice is not just about the chooser. We cannot escape the reality that we are all connected. My choices affect you and vice versa. We cannot always know what these effects will be, but it is important to anticipate these effects when we approach cognitive enhancement and moral bioenhancement as justice issues.

Our values influence what we believe will make our thinking better and to make us morally better. People hold different values. Some values are relatively common, such as empathy and justice, although disagreements exist over their meaning and expression. Values, as we keep emphasizing, are socially influenced. Social processes affect what we think makes us better. For example, social processes influence the types of intelligence we most value. Certain types of intelligence, such as logic, are usually valued over other types, such as emotional intelligence.

Complicating things further, males and females are associated with different intelligences. Rightly or wrongly, males are more often linked with logic and females more with relational and emotional intelligence. The concern is that types of intelligence valued most in the current context will be enhanced at the expense of other intelligences, and that this valuing may be linked to the respective unjust valuing of different genders. Focusing, accumulating information, problem solving rationally, and memorizing may be emphasized at the expense of creativity, relational intelligence, musical abilities, symbolic thinking, intuition, and moral insight. How increasing some selected intelligences, and not others, will affect us is an important question.

Moral bioenhancements have limitations in addressing justice issues. Oxytocin increases empathy but only towards in-group members (e.g., kin). With the world being mired in ingroup/outgroup thinking, it is not clear that enhanced moral reasoning, even when combined with education regarding social justice, will be enough to make oxytocin more helpful than harmful. Ingroup/outgroup thinking has strong instinctual and emotional rootedness. Few people may be willing to do the self-awareness work needed to overcome such thinking.

It will be challenging and complicated to ensure that people who most need these enhancements get them, especially if they do not want them. From a utilitarian perspective, there is an argument to be made in favor of making proven moral bioenhancements compulsory. But forcing enhancements is, understandably, going to elicit resistance from many quarters.

If we fail to engage the variety of perspectives and especially perspectives of the socially vulnerable, we risk amplifying social inequities through enhancements. Consider the example of an elderly person with dementia who exhibits violent behavior, and there is a moral enhancement pill that could theoretically
make them less aggressive. First of all, the decrease aggression pill may work on violent people without dementia but perhaps not on someone whose aggression is caused by dementia. The discussion could end here. However, perhaps it would be more appropriate and therapeutic to use moral bioenhancements to increase empathy and compassion in some clinical staff and managers of long-term care homes, rather than trying to fix the care-receiver. In other words, we need to explore different perspectives to assess who needs to become better and what might make them better. The principle of co-design means bringing in a diverse team with diverse perspectives. Co-design is increasingly important as “we” develop more ways to make “us” better.

Humanity needs moral improvement; there are few detractors on that point. If it turns out that morality can be enhanced safely, affordably, and justly, it is probably going to be most effectively done if it is done in addition to education. If, for example, it is agreed that prudence is important to acting and thinking morally, then prudence must be in the mix, either via a pill or from traditional methods, or both. Moral bioenhancements could be hugely valuable in today’s world, but only if combined with knowledge about, for example, how systems disadvantage and privilege us. In other words, one possible happy future may involve the critical use of safe cognitive and moral enhancements combined with the deepest and best wisdom of the religious traditions.

Neither society, nor the religions, should give up on cognitive enhancement and moral bioenhancement just because they are really complicated and hard, which they are, both in terms of developing and ethically assessing. To give up would be failing to do as much good as reasonably possible. We need to keep working smartly, and one way is to find an appropriate balance between proactionary and precautionary approaches. We need to be cautious in the face of possible significant harms, and we also need to work to do as much good as possible while taking reasonable risks. The vulnerable should not have to bear the brunt of these risks.

We are often tempted by the easy fix. While radically increased intelligence, if properly managed, might be a good thing, we should not necessarily see it as a general solution for anything. We have solutions in hand for many of our societal ills; the problem is not in figuring out those solutions but in harnessing the will to implement the solutions. Too often, we would rather invest in a self-serving agenda.

Some people who are concerned about global warming point out that we already know how to address climate change. What is lacking is the political will and commitment to make major lifestyle changes. The COVID-19 pandemic showed us that we are indeed able to harness a mostly global will to work together to save as many people as possible, even at great economic cost. As with many challenges, it is not that we need scientists with higher IQ’s, rather, we need large scale commitment to appropriate actions that we already know need to happen. Maybe moral bioenhancements can help. Maybe cognitive enhancements can help. But neither are likely to be sufficient by themselves.
Questions for Discussion

1. How might cognitive enhancement affect faith communities? Think of one example of a faith community and consider how cognitive enhancement might change worship practices. Will it change how followers act in their daily lives?

2. In Christianity and Judaism, it is believed that we are made in God’s image. How far should followers go to be like God?

3. How might moral bioenhancements change how karma is understood?

4. Might moral bioenhancements be useful? From a theological perspective, do you think that these enhancements have limitations? Why or why not?

5. If we do not use moral bioenhancements, how do we safeguard against easy abuse and misuse of other enhancing technologies? What do you propose? Why?

6. Recall your top five values. How do they relate to your assessment of cognitive and moral enhancements? What do you think the religions might say about the relationship between values and making us smarter or more moral with enhancement technologies?

7. Discuss social justice as it relates to potential moral bioenhancements. If moral bioenhancements become available, should they be mandatory for everyone? Why or why not?

8. How would you assess the precautionary and proactionary calculation about cognitive enhancement? Moral enhancement?