

Making Better Students

ADHD in Higher Education and the Biopolitics of Stimulant Medication

by

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A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved July 2016 by the
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ARIZONA STATE UNIVERSITY

August 2016

ABSTRACT

According to my 2016 survey of ASU undergraduate students, 33% have used stimulant medications (e.g. Adderall or Ritalin) without a prescription to study. I view this practice as a step towards cognitive enhancement, which is the deliberate application of biotechnology to radically alter the human condition. From a foresight perspective, the ability to actively improve human beings, to take our evolutionary destiny into our own hands, may be a turning point on par with agriculture or the use of fossil fuels. The existential risks, however, may be greater than the benefits—and many of the most radical technologies have made little documented progress.

I turn to an actual example where people are trying to make themselves marginally better at academic tasks, as a guide to how future transformative development in human enhancement may be incorporated into everyday practice. This project examines the history and context that led to the widespread use of stimulant medication on college campuses. I describe how Attention Deficit Hyperactivity Disorder (ADHD), for which stimulant medication is prescribed and diverted, governs students, negotiates relationships between parents and school authorities, and manages anxieties resulting from a competitive neoliberal educational system. I extend this archeology of ADHD through the actions and ethical beliefs of college students, and the bioethical arguments for and against human enhancement. Through this work, I open a new space for an expanded role for universities as institutions capable of creating experimental communities supporting ethical cognitive enhancement.

ACKNOWLEDGMENTS

I would like to thank my committee for their support of a project that does not fit neatly into a pre-defined theoretical box, and for encouraging me at every step of this process. Thank you Clark Miller, Ben Hurlbut, and Jamey Wetmore, for letting me meet this project on my own terms.

Many professors and teachers, while not on my committee, played an important role in shaping my thinking around bioethics, foresight, and transhumanism. I'd like to thank Jim Astman, Michael Bennett, Joel Garreau, Jason Robert, Cynthia Selin, Eric Parens, and Shelley Hurt.

I am grateful to have spent time with a truly world class graduate cohort. My deepest appreciation to Abe Tidwell, Alecia Radetz, Annie Warren, Brenda Trinidad, Denise Baker, Elizabeth Garbee, Eric Kennedy, Heather Ross, Jason O'Leary, Jathan Sadowski, Jen Fuller, Kate MacCord, Marci Baranski, Pat McGurrin, Sean Cohmer, and Tess Doezema.

The Consortium for Science, Policy & Outcomes, and the National Science Foundation Integrative Graduate Education and Research Training (IGERT) Alliance for Person-Centered Accessible Technologies generously supported me with funding.

A dissertation is as much an emotional struggle as an intellectual one, and to thank my family and friends for being with me through it. Beth Burnam, Daniel Fink, Marica Burnam, and Dick Fink. John Carter McKnight, Cindy Tekobbe, and Katrin Tiidenberg, who have kept it pointing forwards since 2014. My miniature schnauzer, Sophie, for making sure that I got up every morning. And most of all, Emily Schach, who

has been a deep wellspring of encouragement and love through the hardest parts of this process.

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INTRODUCTION

Attention is the fundamental coin of the age. We pay attention before we pay anything else, and if not we soon come to regret the consequences of that lapse. In a media culture where thousands of cable TV channels now seem like an evolutionary dead end compared to seemingly-infinite streaming music, video, and games on demand, where global markets provides billions of individual products, where the Western literary canon fits on a cheap handheld device and competes with 140 character-long hot takes, and where success in life seems to come either from grueling endurance in pursuit of excellence from pre-school through making partner, or the complete randomness of being on the right side of economic disruption, the ability to pay attention, to shift attention, to see through the barrage of marketing and temporary distractions to hard fact, is more important than ever before.

Attention is what makes us us. Francis Crick, in a paper laying out a framework for progress in neuroscience, identified attention as the key link between sensory inputs and mental representations of the universe, and between the constant activation of neurons and purposeful and deliberate action. Understanding the neural basis of attention is, in his estimation, a key pre-requisite to grasping the ephemera that is the mind in a scientific manner. “Consciousness depends on certain coalitions that rest on the properties of very elaborate neural networks. We consider attention to consist of mechanisms that bias the competition among these nascent coalitions” (Crick & Koch, 2003). These mechanisms of attention underpin changes in thought from moment to the next, as well as differences in personality and character that make each person unique.

On a smaller scale, as educators we know the difference between engagement and

distraction, between the gaze and the glaze, and the way that students turn off the classroom when they turn on their computers and phones. In our own lives, constantly overworked, behind on grading, reading, and above all, writing, we are all squeezed between tasks. One book of advice for scholars suggests squeezing work into every spare minute, the *reductio ad absurdum* of writing with one hand while stirring a pot of pasta with another (Johnson & Mullen, 2007). There aren't enough minutes in the day, but more so, there aren't enough truly valuable minutes of deep concentration and original, creative, and rigorous thought. Attention is the difference between a truly crafted and elegant argument, a jargon-filled inkcloud dashed off to meet some deadline, and the existential blank page of writer's block. It's also the difference between a sustained and organized push on multiple projects, and an overwhelming slew of scattered distractions and unfinishable quagmires.

The limits of attention are something that all of us experience, but what happens when failures of attention become clinical? Attention Deficit Hyperactivity Disorder (ADHD) is a common diagnosis in contemporary America, usually first detected in childhood and then persisting through adulthood, characterized by failures to sustain attention on a task, by an inability to control impulses, by inappropriate energy in sedate settings, forgetfulness, thrill-seeking, and general maladaptive behavior. Unlike many mental illnesses, ADHD has an effective cure. Stimulants, chemical variants on amphetamines, sold under brand names with the foremost being Adderall, Ritalin, and Vyvanse, counteract the symptoms of ADHD quite effectively. It seems counter-intuitive that stimulants would treat hyperactivity, but current theories suggest that the medications

strengthen inhibitory neural structures in the brain, improving the higher-order functions that suppress impulsivity and distractibility.

While a psychiatric diagnosis, ADHD cannot be encompassed in solely medical terms. The diagnostic criteria for ADHD reveals that it is a disorder of childhood education and failure to comply with the behavioral expectations of the classroom. I take as the premise to my research that ADHD has proliferated to the extent that it has because it offers actionable solutions to individual classroom problems. A troublesome student, one not living up to his or her abilities, can be categorized, treated, and seen to improve in real-time. A torrent of bad behavior, modulated with the use of medication, is clear evidence that the treatment is working. Seeing ADHD so readily is a consequence of a legal and policy environment in the United States that presents ADHD and other diagnoses as ready-made solutions to conflicts in the education arena.

One side effect of the prevalence of ADHD as a diagnosis is the availability of stimulant medication used to treat ADHD in institutions of higher learning. I am particularly interested in the causes and consequences of the proliferation of ADHD, and how the application of psychiatric diagnoses to solve classroom problems modulates relationships between students, parents, agents of the state, and ideals like fairness and merit. A secondary interest is how the pills move through society, how the treatment goes feral outside of the singular doctor-patient relationship. Non-prescription use of stimulant medication has been deemed a kind of “academic steroids” by students and commentators, with potentially corrosive effects on the intellectual integrity of higher education (Schwarz, 2012). If pills can make a person smarter, what then becomes of hard work, talent, character, and similar values that we deem important?

This project has its origins in my personal history and concerns. As an undergraduate at Caltech, I observed many of my friends would have difficulty handling the workload. Multiple times, a friend would throw their hands in the air; declare that they had undiagnosed ADHD (possible but unlikely, given that these were all people who had made it through the filter of a 10% acceptance rate), and go to the school's recommended psychiatrist, where they would invariably receive a prescription for Adderall, Ritalin, or in the case of one particularly picky friend, pure Dexedrine. Afterwards, they'd feel much better about doing math for 14 hours a day, seven days a week. My experiences with the prevalence of stimulants at Caltech were extreme but not atypical, and years later I wondered why this had happened, and what it might mean for these people who would go on to work at the most innovative and profitable companies in Silicon Valley.

My second impression is that in the early 21st century, with the mapping of the human genome, rising awareness of global climate change due to human activity, control of matter at the molecular and atomic scale, the exponentially increasing complexity, size, and presence of computers, it seems that humanity is standing at a precipice. In particular, direct control over various aspects of human biology could lead to vastly extended lifespan, the migration of minds into computers, enhancement of physical, mental, and emotional capacities, and the development of whole new ones. The Anthropocene may prove to be a very short era, as the creatures who inherit the Earth prove very different from naturally evolved human beings. All of this is still science-fiction, and is likely to remain so for some time, but I felt that what I was seeing were tentative steps towards deliberate enhancement of the mind. Futurism is an art, rather

than a science, but the best practices balance disruption and continuity (Schwartz, 1996). The enhanced future, whether it trends towards a utopia of perfected human bodies and minds, or a dystopia of increasing medical risk and stratification along the lines of enhancement, can only come into being one day at a time, from the present status of the technologies used to improve human beings into an unknown future.

However, impressions are not arguments. As I pursued this project, I directed my research along three lines of inquiry to discover the evidence and observation that would help link these interests:

1. How are college students using stimulant medication? Is the population of students using stimulant drugs in any way different from students in general?
2. Why did the "ADHD epidemic", an observed 10x increase in diagnosis rates from 1980 to the present, happen? What function does ADHD serve at the intersection of psychiatry, policy, and society?
3. What does the current use of stimulant medication tell us about the potential for governing human enhancement and directing it towards beneficial ends?

This research took me to places that were not on the original itinerary, along with lengthy journeys to areas I knew would matter: Congress in the 1970s and the conflicts that led to creation of contemporary disability rights; hospital-schools in New Jersey in 1939; Presidential bioethics reports and psychedelic cyborg enthusiasts; the editorial struggle that redefined American psychiatry with the DSM-III; and German children's books from

1844. Throughout the process, I have attempted to attend to the fraught and contingent processes of history, as well as the overall orderings of the world.

Chapter 1 discusses the history of ADHD, and the ways that ADHD has been used as an exemplar of Peter Conrad's medicalization paradigm, an approach that sees diagnoses like ADHD as a part of a project of expansion of pathology into new and wider terrains, and the domination of medical knowledge over other forms of knowing.

Medicalization and its natural theoretical counterpart, a whiggish medical triumphalism which describes a history of increasing accuracy of diagnosis and quality of care, are inadequate to understand the past and current status of ADHD. My research describes a discontinuous history of ADHD, with mutually incommensurable definitions of the disease around moral will, undetectable brain damage, and finally symptom-based criteria. The current definition, dating from the 1980 Diagnostic and Statistical Manual-III, demonstrates a particular robustness by combining a unique space in the modern ordering of psychiatric symptoms with immediate and positive response to stimulant medication.

Chapter 2 delves into changes in American disability law, from early attempts to provide basic sustenance for deserving disabled individuals like veterans, children, and victims of industrial accidents. This public beneficence approach, which originated in Christian charity and reached fulfillment in the Progressive movement of the early 20th century, was radically upset by the almost accidental creation of explicit rights for people with disabilities in Section 504 of the Rehabilitation Act of 1973. For the first time, it was recognized in Federal law that people with disabilities suffered from discrimination. Providing remedies for this discrimination required adjustments in physical architecture,

hiring specialized staff, and training teachers, financial burdens on the states. Ensuring that the new rights were in fact going to the proper beneficiaries required negotiating the legal boundaries of disabilities and creating a set of procedures that paired access with demonstrating a burden of proof that the disability was objectively real . I focus particularly on the process of creating educational accommodations in primary and secondary schools via the Individualized Education Plan (IEP), which serves as a common model for accommodations for learning disabilities, including ADHD, in colleges. Continuing through the Americans with Disabilities Act, I finish by noting the limits and contradictions of rights-based approaches. While activists sought to “demedicalize” their own conditions, in the legal regimes established under the ADA, persons with disabilities could only prove discrimination after a combined legal-medical judgment of their conditions. I suggest that beyond the totalitarian examples of biopower used by Agamben in *Homo Sacer* (1998a), the workings of disability law and the creation of accommodations provide an example of how liberal democracies manage their populations today.

In Chapter 3, I continue with a detailed look at how disability accommodations are created and managed. Legal mandates to provide access for students lead to professional standards and technological infrastructure to create that access. Education serves many purposes, and I compare the role of ADHD across a classically liberal and neoliberal educational system. While these two rationalities, modes of thinking about what features of the universe, share vocabulary and some practices, their differing ends creates differences in institutional design and educational experience for both students

and teachers. ADHD represents a point of stability that articulates unspoken neoliberal anxieties into widely accepted liberal solutions.

Chapter 4 describes the results of a survey completed by 203 undergraduates, which asked questions about the prevalence of stimulant medication use, perceptions of the prevalence of stimulant medication, and the ethical reasoning of students about the use of stimulant medication, which has been described as a form of “academic steroids,” in comparison to other forms of academic misconduct. 7% of my respondents had a prescription for stimulant medication, 38% in total had used them at some point, and that stimulant medication is widely available on campus through loose networks of friends and acquaintances. Students ranked the use of stimulant medication without a prescription as the least serious form of academic misconduct. There was no detectable difference in GPA, or views on fairness or competitiveness, between students who did and did not use stimulant medication.

Chapter 5 delves deeply into the ideology and program of transhumanism, a movement based around the potential to use applied technology to fundamentally recreate human beings as individuals and as species. Transhumanists believe that the time has come for humans to take control of their evolutionary destiny, to banish the specter of death, and to give people the chance to overcome biological limitations. Within the transhumanist program, there are deep divides between groups pursuing cryonic suspension, the uploading of minds, and biological immortality. Transhumanism has attracted a great deal of serious criticism for threatening human nature as a basic underpinning of political rights and ethical standards. I suggest that the medical and rights-making practices described in this dissertation, along with the non-prescription use

of stimulant medication by students today, offers a space in which universities can exercise positive democratic governance over human enhancement. There is an opportunity to give the transhumanist experiment institutional backing that it has not enjoyed, while at the same time grounding it in the liberal values of egalitarian meritocracy.

Throughout this project I have used three theoretical lenses as the basis of my thinking about science, society, the use of technological artifacts, and the aims of policy. Latour's *We Have Never Been Modern* (1993) casts the modern stance as defined by two contradictory acts: 'translation' creates hybrids of nature and culture, quasi-objects that trace social networks and are comprised of physical-natural objects. Simultaneously, modernism 'purifies' the world into the human realm of culture and the scientific realm of nature. The power of the modernist constitution is its ability to shift effortlessly between the poles of nature and culture, depending on what perspective makes subjects more manipulable. The weakness of modernism, in Latour's framing, is that hybrids proliferate even as we deny their existence—that the hybrid quasi-objects in the world exist beyond understanding and therefore effective analysis or governance. Hybrids must be purified before they can be dealt with, and to return to ADHD, most analysis sees the problem as one of medicine, or education and disability, or drug control. Some wider theorizations see it as symptomatic as of a crisis in capitalism or post-industrial society. The attempts to make sense of ADHD in one aspect are incomplete but this assessment will try and capture ADHD and amphetamines in a holistic, hybrid manner.

Latour's hybrid networks are slippery things to work with, and Jasanoff's idiom of co-production (2004) can be seen as an attempt to tame the concept and make the

mutual interactions of technoscience and society visible to scholars. Co-production takes the ordering of nature through science and the ordering of society through power and culture as products of the same act, noting that power and knowledge are intimately related, that scientific and technological acts are also political statements, and that political legitimacy depends on the ability of science to speak for nature. Co-production centers on several themes: the emergence and stabilization of new technoscientific objects and framings, the resolution of controversies, the intelligibility and portability of objects across boundaries and domains, and the adjustments of scientific practices to cultural contexts. The pathways of co-production are in the making of identities, institutions, discourses, and representations. Through this work, I aim to show how ADHD has created a new discourse of mental health and human efficiency, an identity of the ‘problematic but successful’ ADHD subject, and influenced the design and procedures of educational and medical institutions.

Foucault’s theories of Biopolitics (1990), of disciplining souls (1988), of the inextricable ties between scientific progress and the modern order of the universe (1976), weave throughout this piece. Little can be said about Foucault that has not been said, but I see in his theories more than just domination and power. I see a way in which people enroll themselves in projects of structuring and ordering, of making their own cares comprehensible to an uncaring bureaucratic machine, and above all, of reducing the emotional burden of their own care.

The prevalence of ADHD in our lives calls into question what happens when the abnormal becomes normalized. ADHD is all the pressures of modern life and our human inadequacy in the face of them compressed into a four-letter acronym, a diagnosis that

links a theory of mind to the practice of education, a category that balances the ideals of equality with the reality of competition. In this work, I want to focus on the details across many areas and several decades, to show the hard work that goes into realizing new political rights and stabilizing the forms of knowledge concomitant with those rights. I want to explore one of the contradictions of modernity, and how an individual health solution can become a collective moral problem. I want to see what people raised in this milieu think and experience in their process of becoming adults, and compare it to very different ways of conceptualizing what a human being is, and how a life is supposed to be lived. Because ultimately, we will not leap boldly into a future where everything is new and strange; we get there one day at a time, building on the world that we see around us today.

Now, let us attend...

1. PROBLEMATIZING ADHD

Is there such a thing as pure Attention Deficit Hyperactivity Disorder (ADHD), a psychiatric disorder free of political and social entanglements? An approach premised on purity would start and end with biology and behavior, without acknowledging the historical or social contingencies that make the disorder a durable feature of life for millions of people. Somewhere within the changing Diagnostic and Statistical Manual (DSM)—the complex index of mental illnesses published by the American Psychiatric Association, the scientific, scholarly, and popular literature, there is a true essence of ADHD the effects of which can be traced out in society. This approach would put the cart before the horse. Rather than hunting for some underlying reality, this project takes a construction approach that analyzes ADHD as a problem. Problematizing ADHD invokes the multiplicity of actors and agents involved, and orients this project towards how the entity acts in the world, rather than what it is, or what it is called. For whom is ADHD a problem? Why is it a problem? How is that problem solved in both individual cases and on a general basis?

A note on nomenclature: ADHD has had many names and labels over time, while noting that there are differences between Attention Deficit Hyperactivity Disorder, Attention Deficit Disorder with or without Hyperactivity, and Minimal Brain Dysfunction, for the purposes of clarity, I will maintain the contemporary usage of Attention Deficit Hyperactivity Disorder, without ascribing exact similarity between what doctors today call ADHD and the different diseases that their predecessors researched and treated.

The purpose of this chapter is to introduce and assess ADHD and stimulant drugs as technologies; a problem-solution dyad that exists in psychiatric and personal framings. This chapter reviews the literature on medicalization and pharmaceuticalization, major sociological and anthropologic frameworks used to understand ADHD and stimulant medication, and puts them in conversation with science and technology studies theories about technology.

This chapter is most concerned with ADHD as a diagnosis, as a form of knowledge, but this is applied knowledge that only gains salience due to the mobility of stimulant medications. There are many possible definitions of technology, but I have found two particularly illuminating. W. Brian Arthur, an economist and complexity theory expert with the Sante Fe Institute, describes technology as “As assemblage of components and practices *applying* one or more physical principles to fulfill human needs, [emphasis mine]” focusing on the modularity and expandability of technologies across domains governed by different natural laws (Arthur, 2009, p.28). Bijker and Pinch (1984) of the Social Construction of Technology (SCOT) school note that the success or failure of a technology in the world are associated with a condition of social closure as defined by those who make, use, and are affected by a technology. Closed technologies have familiar, stable forms. Arthur’s definition draws our attention to physical actions and human needs; Pinch and Bijker to reliability, settlement, and relevant interest groups. Precisely measured doses of stimulants introduced to bodies and thence brains in order to fulfill a variety of human needs for energy, attention, focus, weight loss, competitive advantage, pleasure, can be seen as part of Arthur’s complexity theory of technology, but they are the most immediate material instantiations of a social process of diagnosis and

amelioration. ADHD is a social technology as much as a disease: a way of achieving reliably similar results for people across diverse settings, thereby ensuring that the different people are treated equitably by the same institution, or that one person can expect coordinated treatment under different regimes of knowledge. ADHD becomes particularly “social” when it departs the medical regime (covered in this chapter) and interacts with legal and educational practices (Chapters 2 & 3).

Medicalization and its Discontents

Medicalization is the classic lens through which ADHD is understood. As developed by Peter Conrad, medicalization refers to the process by which difficulties with living beings become defined in medical terms: as disease with prognoses and treatments. It is the expansion of discourses of health and illness into areas in which those terms did not previously apply, the creation and maintenance of biological and psychosocial norms and forms of deviance, and the role of medical professionals in describing and ‘signing off’ on medicalized problems in other social areas—such as disability in education or mental competence in criminal justice. Medicalization theory criticizes the narrowing range of acceptable diversity in life, the transformation of collective problems to individual medical issues, and an increase in medical control.

It is impossible to discuss problematizing ADHD without using medicalization. ADHD served as the first case study in Conrad’s (1976) development of medicalization, and he and other scholars have continued to expand on this work in the decades since (Malacrida, 2004). In the medicalization framework, ADHD is primarily about the expansion of medical controls into childhood and education; transforming the

rambunctious or exuberant child into the abnormal ADHD sufferer. Subsequent work has focused on the medicalization of under-performance via ADHD and diagnosis seeking behavior by adults—a process of blame shifting from conscious choices to innate biology (Conrad, 2007, p. 46-69). Patient advocacy groups such as Children and Adults with Attention-Deficit/Hyperactivity Disorder (CHADD), pharmaceutical giants like Ritalin manufacturer Ciba-Geigy, and diagnostic institutions including the American Psychological Association and managed care firms, mutually interact to solidify the ADHD diagnosis in public consciousness and ordinary use (Conrad, 2007, p.70-96).

Medicalization has made important contributions towards scholarship, particularly in connecting Foucault's theories about the clinical gaze and discourses of modernity to contemporary anthropological and sociological fieldwork (Foucault, 1994). Medicalization places daily interactions and institutions of medicine as part of broader project of modernity: a rational progressive movement towards ordered, efficient, and free human interactions. However, medicalization has led to a shallow understanding of the interaction between psychiatry and society as primarily colonial, and one with little remedy for the subjects of over-medicalization. . As a form of critique, medicalization implies as its counterpart demedicalization, a process of removing medical influences that is has been observed in a handful of cases around homosexuality and masturbation (Davis, 2006).

Medicalization draws much of its basic influences and frameworks from the anti-psychiatry movement of the 1950s and 1960s, such as the works of Szasz and Illich (1975). These critiques of psychiatry depicted the field as not only non-scientific, but also interested in extending human suffering rather than alleviating it (Szasz, 2010).

Though there is a common thread from anti-psychiatry through science and technology studies that knowledge, including psychiatric knowledge is constructed, the anti-psychiatry movement moves rather farther from the basic position that there is no such thing as simple access to nature and that the construction of knowledge is a labor intensive process with social and political commitments, to the radical position that such knowledge is essential fictitious, representing the preferences of existing elites rather than having any correspondence with an external reality. While anti-psychiatry arguments, based on disrupting received authority, made headway against the therapeutic mirror that described the basic relationships of psychoanalysis (Foucault, 1988), the scientific and statistical basis of the DSM-III and its revisions has proven resistant against these same arguments (Latour, 1987). The criticism of ADHD has not evolved in sync with its object.

Pharmaceuticalization is a relatively recent sociological frame for understanding medical trends. A development of the medicalization thesis, pharmaceuticalization examines “translation or transformation of human conditions capabilities, and capacities into opportunities for pharmaceutical intervention” (Williams, Martin, & Gabe, 2011). Pharmaceuticalization substantially differs from medicalization in taking as its focus the materiality of drugs, and their use in non-medical settings for performance enhancement or pleasure in addition to healing (Bell & Figert, 2012). Doctors and medical authority are decentered, becoming one of many interest groups that also include pharmaceutical corporations, patient advocacy and consumer groups, and the regulatory bodies of nation-states. The six sociological dimensions of pharmaceuticalization map neatly onto issues and current status of ADHD; particularly the redefinition of health problems in terms of

pharmaceutical solutions (the focus of this chapter) and the way that those pharmaceuticals are understood as commonplace objects (Chapter 4), and a future based around human enhancement (Chapter 5).

- i. the redefinition or reconfiguration of health problems as having a pharmaceutical solution;
- ii. the changing relationship between state regulatory agencies and the pharmaceutical industry;
- iii. the mediation of pharmaceuticals in popular culture and daily life
- iv. the creation of new techno-social identities and the mobilization of patient or consumer groups around drugs;
- v. the use of drugs for non-medical (enhancement) purposes and the creation of new consumer markets, and finally;
- vi. drug innovation and the colonization of health futures, albeit in an industry plagued by a major crisis over productivity and innovation.

(Williams, Martin, & Gabe, 2011)

Pharmaceuticalization and medicalization make important contributions to the study of ADHD, but it is important to be aware of the limits to these theories. The “pill” quality of stimulants is important to how substances move so easily from prescribing physicians to users and then to a grey market explored more fully in Chapter 4, however a purely pharmaceuticalized approach risks ascribing more agency than is warranted to material objects. Medicalization casts arguments about the definition of disease as primarily about power and authority, without due consideration of the difficulties of healthcare. To these theories I add an epistemic dimension. Knowledge, and the ways in

which knowledge is rendered intelligible by expert groups as part of a coherent plan for ordering the world, as well as moved from within the domain of experts to the understanding of laypeople like patients, general practitioners, and students,

ADHD Across Psychiatry

Psychiatrists and other mental health professionals have multiple goals: the well-being and care of their patients; the professional power and prestige to make a diagnosis and treatment ‘portable’ from their office to any other setting that the patient may encounter; the internal coherence of theories of mental illness, and historical continuity with prior diagnoses concepts. Per coproduction, knowledge/power is inextricably linked. Though all medical knowledge is a matter of professional consensus (Aronowitz, 2011; Rosenberg, 2002), disease definitions that shift radically make this socially constructed knowledge appear artefactual as opposed to factual. A diagnosis that does not lie neatly with other mental disorders is an isolated fact: weak, unlikely to be taken up, and liable to be deconstructed (Latour, 1987). Without valid knowledge, mental health professionals lack the power to make their recommendations portable and enlist others including patients, but extending to families, educators, administrators, etc. in the process of care. Conversely, any intervention that produces an improved healthcare outcome will draw a blanket of knowledge around it, even if the precise causal mechanisms of the improvement are not understood.

Historians of ADHD trace the origins of the disease to the late 18th century, coinciding with Foucault’s (1988) identification of the confinement of the mentally ill in asylums as a distinct form of governmentality (Lange, 2010). Doctors, empowered by the state to collect and confine the population of mentally ill, and inspired by Enlightenment

ideals of rationality, began a process of categorizing and describing madness, including the predecessors of ADHD. Medicine aspired to the status of a science via the clinical gaze, the regularized examination and classification of organs, lesions, changes in signs over time. However, even these basic facts require interpretation and theory. A fact which does not fit into a theory tends to be discarded (Kuhn, 1996). In psychiatry, more theory driven than other sciences, the traces of a disease must fit into theory.

Heinrich Hoffman, a German physician and satirical writer, created the first popular depiction of ADHD with his Fidgety Philip/*Zappel Philipp* children's story about a boy who can't sit still and annoys his parents by destroying dinner when he falls out of his chair, taking the entire table setting with him. Fidgety Philip has been described as a classic portrayal of the conflict between parents and children, and is frequently invoked in contemporary discussions of ADHD (Goodwin, 2010).

Sir Alexander Crichton (1798), a Scottish physician, wrote a three volume clinical study of mental derangements, including a chapter on "On Attention and its Diseases." Crichton theorized a pathology of opposed poles of over or under sensitized nerves, whereby a sufferer would be unable to attend to any one thing, would be agitated by the slightest distractions such as people walking in an adjacent hall, or a slight excess of heat, cold, or light, leading to a particular delirium Crichton describes as the "the fidgets."

The third historical touchstone is the lectures of George Still (1902) on moral will. Still, considered the father of British pediatrics, delivered a lecture to the Royal College of Physicians in 1902, considering the possibility of children who pass as having normal intellectual, but who nonetheless suffer from a grave morbid mental defect. Still's moral control, defined as ability to act in such a such a manner as for the good of all, is

dependent on inhibitory volition, the ability to control impulses and movement, the development of which is a natural part of child development. Still notes that of the many “morons”, “idiots”, and “imbeciles” that he observes (at the time, these were medical terms (Carson, 2007)), 23 of 90 exhibit clear deficits in moral will, above and beyond what would be expected from their general level of mental impairment. His case studies, are however mix many modern disorders together, including “spitefulness and cruelty” and “lawlessness” as major diagnostic features along with “passionateness”, the reactive and automatic rejection of authority and constraint characteristic of the modern diagnosis of Oppositional Defiant Disorder, and one example of what is clearly dyslexia to modern eyes. Despite their retrograde tone, the Still lectures are regarded as important because they represent the first scientific-medical description of ADHD, as opposed to unorganized anecdotes.¹

Still’s lectures represent a key touchstone today, but they did not gain currency with the psychoanalytic theories of Sigmund Freud which came to dominate the field in the 1920s and 30s. ADHD does not fit into psychoanalytic categories. It is not neurosis, stemming from deep-seated psychic wounds, or a psychosis characterized by completely disabling delusions. The best attempt that Freudians could make for explaining their version of ADHD was that it was a physical reaction to childhood neurosis, a milder kin to Freud’s famous case study of somatoformic blindness or paralysis. Even in infancy, minds could exhibit psychic wounds, which manifested as bad behavior during the vital

¹ Compare generally positive comments on Still (Barkley, 2006) to negative comments on Crichton (Barkley, 2008). The fact that the present ‘dean’ of ADHD devotes energy to reconstructing century-old arguments is fascinating.

latency period between the ages of five and puberty. In the view of prominent childhood analysts Anna Freud and Melanie Klein, the fidgeting and distractibility characteristic of childhood ADHD were symptoms of underlying psychic tension and conflict between the emerging self and the familial environment. Anxiety and compulsion, filtered through the atypical development of a fragmented ego, could only be resolved by putting the entire family through psychoanalysis; a therapeutic approach with limited chances of success (Rafalovich, 2001).

While ADHD is a psychoanalytic orphan, it provides a rich avenue of research for pharmacological and behavioral research. Modern stimulant medications trace their origins to Gordon Alles, a California based chemist in the 1920s who investigated synthetic variants of ephedra and adrenaline in the search for an effective anti-asthma drug. His 1929 experiments with beta-phenyl-isopropylamine, now called amphetamines, revealed decongestant effects along with strong central nervous system stimulation, although these were not the results Alles searched for. In 1934, Alles approached the Philadelphia pharmaceutical firm of Smith, Kline & French (SKF), which had just released a decongestant inhaler containing Benzedrine, an amphetamine salt. Negotiations over patent rights led to a fruitful partnership between Alles and SKF, a small and ambitious company seeking new compounds to gain market share against then industry leaders Merck and Lilly. In the 1930s, regulations for pharmaceutical testing were much less stringent, and SKF supplied Benzedrine to any doctor conducting research (Rasmussen, 2009, p. 25-52).

One of these doctors was Dr. Charles Bradley, chief psychiatrist at the Emma Pendleton Bradley Home, a children's hospital founded by Bradley's great-uncle in honor

of a daughter who suffered from encephalitis. The Emma Pendelton Bradley Home was a Progressive-era residential hospital-school, a sprawling wooded estate that offered care and education to children with behavior disorders, while providing ample raw clinical material for Dr. Bradley's neurological research (Byrom, 2001). Bradley investigated the neural origins of his patients' behavior disorders with pneumoencephalography: an invasive imaging technique that involved draining most of the cerebrospinal fluid from the brain and replacing it with air, thereby increasing the level of brain detail revealed in cranial X-rays. Bradley experimented with Benzedrine to counter the painful headaches caused by pneumoencephalograms. While the headaches persisted, Bradley noticed that approximately half of his patients exhibited a remarkable improvement in behavior, becoming calmer and more driven. He published initial results in 1937, and a fuller study of 100 children in 1940; these papers were the first studies to link stimulant medication to the normalization of deviant behavior in an educational context (Strohl, 2011; Bromley, 2006).

Bradley's work lay fallow for decades, although some child psychiatrists experimented with methylphenidate (sold under the brand name Ritalin) as a treatment for hyperactivity. A sort of clinical folklore developed around 'minimal brain dysfunction', under the assumption that since children with visible brain damage are often hyperactive, hyperactive children must suffer from some as of yet unseen form of brain damage. In this environment, a major contribution to ADHD was the work of Canadian psychiatrist Virginia Douglas, who combined a battery of studies using common psychological and learning disability tests to show that children of normal intelligence, reported by parents and teacher for symptoms of hyperactivity, demonstrated

common inability to “stop, look, and listen”, to consistently perform tasks requiring care and concentration, even when their best performance on these tasks matched that of normal students. Douglas also found in her study (partially funded by Ciba, manufacturers of Ritalin), that methylphenidate improved the performance of her subjects on all tests. Douglas proposed that her “stop, look, and listen” dimension described an important factor for all children, used to learn and cope with a wide range of situations, and even become a moral actor. Though the exact brain mechanisms behind normal attention and abnormal ADHD were unknown, and the EEG probes insufficiently powerful in resolution or precision to reveal them, Douglas believed that the broad spectrum of evidence conclusively demonstrated the existence and importance of a real attention-based syndrome (Douglas, 1972).

The DSM-III and Modern ADHD

The ‘atheoretical’ approach of the DSM-III (APA, 1980) opened a space in which ADHD could flourish as a distinct disorder. In the late 1960s and 70s, the psychoanalytic establishment entered a period of crisis, under cultural attack from post-modernist and anti-psychiatric critics outside the profession, and from medical critics within. For these internal reformers, psychoanalytic frameworks were flawed primarily because of their dismal inter-rater reliability: two psychiatrists making a diagnosis of a patient off of the same clinical interaction were unlikely to agree on the same diagnosis. Psychoanalysts, unable to come to consensus on basic terms and frameworks, were even less able to incorporate new psychiatric techniques, including the first generation of anti-psychotic medications, or provide meaningful guidance for the future of psychiatric research.

In this environment, Dr. Robert Spitzer and his fellow neo-Kraepelian reformers,

drew up a system of mental illness based not on any overarching conception of the mind and its illnesses, but rather on finite lists of possible symptoms, designed with the aim of making it easy for psychiatrists to distinguish between alternative diagnoses (Compton & Guze, 1995). The new descriptive psychiatry made it easy to distinguish ADHD from other mental disorders, such as anxiety, depression, or learning disorders. The criterion based on inattention and hyperactivity in two or more settings at the ages of seven and up, served to clearly define ADHD. Psychiatrists who done had key research on ADHD, Paul Wender and Dennis Cantwell, made important contributions to writing the criterion used in the DSM-III. Wender, who had worked on ADHD since 1971 with his monograph on *Minimal Brain Dysfunction in Children*, was adamant in advocating that the disorder was more than a childhood condition, and that while it was first detected in childhood, it persisted into adulthood. While Wender's concept of a "residual ADD" was removed from later versions of the DSM, his arguments were key in the current understanding of the disorder as a widespread mild condition that can fairly be applied to adults as well as children (Decker, 2013, p. 273).

The authors of the DSM-III intended a radical break with the past. Their intentions were to align the field with advances in research and treatment and to discard the hoary theories of mind which stood in the way of scientific studies with firm statistical validity. Spitzer's energetic and involved management style, combined with the institutional lethargy of the psychoanalytic school, removed psychoanalysis from psychiatry altogether. More than just a handbook for clinicians, the DSM-III provided a classificatory alignment with the International Classification of Disease (ICD-9), the financial reimbursement systems of health insurance and managed care, and research

grants administered through the National Institutes of Health. The diversity of DSM-III mental disorders could be seen not as differing responses to personal psychic trauma, but as unique and independent disease entities, grouped by their observed effects on personality, cognition, and emotion, rather than a single underlying cause (Decker, 2013).

As it exists today, ADHD represents a nearly perfect “solved” psychiatric problem. Though the DSM definition of ADHD has shifted since the DSM-III, the changes are evolutionary rather than revolutionary, responding to concerns within the scientific community (Willcutt et al, 2012). Treatment via stimulant medication is an easy intervention with a reasonable chance of success. Finding ADHD in a patient implies a relatively easy intervention with a good chance of improving symptoms. While the etiology is relatively unknown, a high degree of heritability implies a genetic basis to be discovered. Attention and executive functioning are fruitful areas for neurological imaging, with the promise both of increased general understanding of the mind and a future medical imaging test for ADHD, the final legitimization of a psychiatric disorder as a medical disorder (Bobb et al, 2006).

Living with ADHD

When discussing the broader theory, implications, and deconstruction of a disorder, it is important to not lose sight of the person at the center of the cloud of possibilities. ADHD can be the source of suffering and personal anguish. Hallowell and Ratey's (1994) *Driven to Distraction*, a 1994 guide to recognizing and coping with ADHD, provides a particularly sensitive view of the personal aspects of living with ADHD. Hallowell begins the book by describing his own case of ADHD, which he discovered at age 31 near the end of his training in child psychiatry while attending a lecture. The label put his life history in context, descriptions like "daydreamer", "lazy", and "spaces out" become part of a cognitive style with benefits as well as disadvantages.

The medical confessional, as much as the DSM, serves as an entry point into the world of ADHD. The literature contrasts missed opportunities due to disorganization, and lives ruined through risk-taking self-stimulating behavior characteristic, with being interested, "type A", jumping from situation to situation with ease. The ultimate success (at least for these authors) is finishing their own self-help book. The personal confession and sharing of strategies for redirecting energy and distractibility into safe avenues for growth is characteristic of contemporary discourse around ADHD. While some people find solace in being able to tie their life difficulties to a widespread medical phenomenon, individual resistance to labelling is at the heart of many efforts to demedicalize ADHD. People want to see themselves as 'more than just a diagnosis,' or believe that the literature does not adequately include all the beneficial aspects of the ADHD personality type (Timimi & Leo, 2009).

Stimulant medication represents a second source of ambivalence within the personal problematization of ADHD. With stimulants, ADHD is an exemplar of a managed illness. However, living a life oriented around drugs and being constantly “wired” is exhausting. Adults may choose to medicate only when they feel particularly distracted, while many child psychiatrists recommend ‘drug holidays’, days without medication, as a regular part of the course of treatment. Drug holidays and the misdirection of pills are linked. While as a scheduled substance, prescriptions are controlled and not automatically refilled, patients may not take their pills every day of the month, leaving extra medication to be stockpiled, sold, or given away.

Conclusion: Materiality and the Technology of Medicine

This chapter demonstrates how ADHD became “closed” as a diagnosis in the SCOT sense of “closure”. Closure occurs when multiple stakeholders converge on a single definition of a technology, which may work for different reasons. In the case of ADHD, the defined ordering of mental illnesses sought by the neo-Kraepelians intersected with the desires of clinicians and patients for a detectable and treatable diagnosis. The social and political dimensions of the disorder, to be discussed in depth in the next chapters, are as important as the epistemic and material dimensions, and not adequately encompassed by medicalization or pharmaceuticalization theories.

This argument reframes claims of an “ADHD Epidemic.” While accepting the significant increase in cases of ADHD in the United States between 1970 and 2010 (Sclar et al, 2012), that increase in fact indicates the existence of a new disease, rather than the rise of an older disorder. A closer look reveals stuttering progress and medical developments separated by decades, which have been retrospectively wound into a

genealogy to provide historical weight to current practices around ADHD. Both medical and medicalization theory explanations of the “ADHD Epidemic” partake of sociology of error approach: either psychiatrists were wrong then or wrong now, and either way the diagnosis has been mismanaged. The prevalence of ADHD is correct at both dates, and that the “ADHD Epidemic” reflects both diagnostic fluidity and cultural and political changes that have made ADHD more salient. While it is possible to talk of ADHD now and in the early 20th century, seeing them as simply the same thing is a mistake not born out by the fragmented history of attempts to make sense of a cluster of ADHD-like symptoms.

ADHD has expanded because it is so useful for so many people. It is a treatable disease for a form of psychiatry which has turned against long-term talk therapy in favor of the observation/action cycle of diagnosis and prescription of drugs. Stimulant medications have immediately visible effects on the body and mind, with short-term benefits in the classroom.² The discourse of ADHD provides a way to turn an individual life history characterized by distraction and hyperactivity into a common identity. And however stimulant medications act on the brain, however the increased levels of norepinephrine and dopamine modify neural activity, stimulant medications provide a sense of focus and purpose to people with ADHD in excess of their generally energetic and pleasurable effects on the population. This individual, subjective, and yet very replicable fact is at the heart of the durability of ADHD. Without a treatment, there would be no disease.

² As an aside, milder stimulants such as caffeine are used as a super-placebos in studies, under the logic that since test subjects sense the side-effects, they are more likely to generate a placebo effect.

2. DISABILITY RIGHTS AND BIOPOLITICS

ADHD solved more than the psychiatric problems explored in the last chapter. The expansion of ADHD can be fruitfully explained as consequence of the constrained choices that educators, parents, students, and medical professionals can make in accordance with laws creating and enforcing disability rights. This approach explicitly adds a political dimension to treating ADHD as an interactive kind, a label that loops back to influence the categories of people in the world (Hacking, 2001 p. 90). While it may seem trivial that the category ADHD changes how people with ADHD see themselves, and that changes in how patients present may thereby change how the diagnosis is understood, ADHD as an individual mental illness cannot be fairly separated from its institutional context of late 20th century American education, and the collective anxieties over rights, merit, and competition in a knowledge based economy.

This approach stands in contrast to an environmental explanation for the rise in ADHD, which would look for factors such as artificial food colorings, high fructose corn syrup, or the prevalence of screens and personal electronics. A radically constructivist account would argue that ADHD is mostly fictitious, a product of conspiracy between psychiatrists and the pharmaceutical industry with public collusion (Neven, Anderson, & Godber, 2002). While these explanations may have some salience, following changes in policy along with changes in diagnostic criterion shows ADHD has grown because it fits into a classificatory schema based on technocratic evaluations of ability and disability, rather than a moral classification of character. The legislative process decided that, as a matter of fundamental human rights, society could no longer infringe on the liberties people with disabilities. This required specific processes for

determining when someone was disabled, when their rights were infringed, and what accommodation was necessary to correct the infringement.

This knot that refuses to be unraveled is the disability accommodation, a peculiar object at the heart of this section. I will explain how the disability accommodation links the individual to the population, by transforming the abstract political right to be included in the community into concrete practices and technologies. I will connect the ontology of the disability accommodation, what it actually is, to the legislative history of disability rights in the United States, and to the practice of recognizing and compensating for relevant biophysical differences in an educational setting. In the broadest theoretical sense, I put Foucault's normative Biopolitics (1990), the use of regulations and knowledge/power to produce certain aspects of a population, in conversation with Dworkin's liberal apologia for rights, and the ways in which an individual may demand recognition from a political community.

This project centers on colleges for two reasons. First, as objects of study, college students are nominal adults in charge of their own destiny, making decisions about specialization and future identity that go beyond universal primary and secondary schooling. College is a time when people decide who they want to be, choosing majors and careers, and grades, credit hours, and degrees, that are non-comparable on the specifics, but are generally transferrable within a college and across the college system nationally. Second, ADHD in children and elementary schools has already been written about (Rafalovich, 2007), and I am examining how ADHD acts as an instantiation of larger trends in the negotiation of political rights, and how it continues to exist in adults beyond an initial diagnosis.

Colleges do not set accommodation policy independently. The practices of Disability Resource Centers (Chapter 3) are a logical extension of special education in primary and secondary schools, in order to minimize disruption for the student and ensure the best chance for success in a new and much less structured environment. The existence of these programs, their rationales and some of their procedures, were created by a series of disability laws passed from the 1970s to the present, with their limits continuously refined by lawsuits and the internal evolution of bureaucratic standards. Accommodations cannot be understood except in context, and this section will describe that context, and the evolution of the accommodation as part of a system of categories, labels, and processes that circumscribe terms like disability, merit, fairness, justice, and flourishing.

Caring About the Disabled

American policy for people with disabilities traces its origins to a hospital for disabled sailors established in Boston in 1798 by President John Adams. However, this was limited care for a small class of workers. Through the 19th century, care of the disabled was ad hoc, reliant on religious charitable institutions and a few schools, such as Gallaudet College for the Deaf and the Perkins School for the Blind. In the early 20th century, these programs were dramatically expanded in response to industrialization. Workplace safety and injury compensation legislation was prompted by the harsh conditions of railroad workers, one in eight of whom were killed or seriously maimed (Williams-Searle, 2001). Progressive reformers, eager to avoid the patronage and corruption that characterized the post-Civil War Pension Bureau (Skocpol, 1995), created

a modern and rational system of disability pensions, based on medical evaluations and inability to garner future employment (Hickel, 2001).

These systems recognized disability primarily as an injury than rendered an individual unable to work and support themselves and their family in an industrial economy. The fundamental injustice that random chance on a shop floor or battlefield might doom a man and his family to a life of penury and then starvation demanded charitable support from society, particularly if the disabled person had demonstrated their productive worth prior to the injury. However, as both workmen's compensation programs and the First World War medical review boards found, resources were always less than sufficient to support all applicants and the majority of war injuries were for lung disease and cardiovascular conditions not obviously traceable to battlefield injuries.

As a way to mitigate the possibility that disability compensation was creating dependency, rather than proper restitution for clearly identifiable harms, disability legislation came to center on the idea of vocational rehabilitation, programs designed to identify what jobs a disable person could hold, and guide them towards greater levels of self-sufficiency. Vocational rehabilitation was formalized by a national professional organization in 1913, and allied with Progressive Era programs for vocational schooling to link students to new industrial trades, and industrial psychiatry for the efficient management of the labor force (Scotch, 2001, p. 20).

Vocational rehabilitation is a professional subtype of social work that grew out of Progressive era reforms. Elliot, writing an article on the future of the field in 1944, describes "its fundamental purpose [as] the conservation of human resources, and [...] to assist persons who have suffered from accident, disease, or congenital disability to

establish themselves in full-time employment” (Elliot, 1944). Employment is elevated to an almost spiritual status. For example, another review of the field from the late 1960s grounds the therapeutic value of work in a Freudian direction of interior energies, the common social good, and even the individual’s relationship with God (Di Michael, 1969). Work, while central to vocational rehabilitation, is not its sole purpose. Both authors speak of it as a multidisciplinary applied program, combining aspects of physiology, psychology, labor advocacy, and social work, intimately related to finding out what each individual client can do, wants to do, and what is available in the vicinity. Occupational therapy has replaced vocational rehabilitation as the preferred term for these services; the process of individual assessment of quantitative physical and mental limits combined with qualitative assessment of inclinations and preferences, in order to customize and accommodate each client to a job site.

Funding for vocational rehabilitation programs increased from \$1 million per year in 1920, matched on a 50-50 basis by each state and distributed according to population, to \$300 million in 1965, with the federal government picking up the majority of a 75%-25% share (Scotch, 2001, p. 22). In real terms, adjusted for inflation, this is an increase in program size approximately 120-fold. During this period, primary responsibility for vocational rehabilitation shifted from the Office for Education to the Federal Security Agency under the New Deal, and then to the Department of Health, Education, and Welfare under President Johnson’s reorganization. As of the early 1970s, the financial responsibility for rehabilitating people with disabilities was primarily funded by the federal government but administered at a state level, and had grown significantly in scope without intense scrutiny over its regular reauthorization.

Section 504: The Disability Rights Paradigm

The 1960s and 1970s were a period of profound realignment in the relationship between the government and people, as exemplified by an expansive and newly empowered discourse of rights. The most prominent redefinition was the Civil Rights Movement, which fulfilled the promise of the 13th and 14th amendments, which achieved its victories through a combination of mass protests and Federal authority reaching down to dismantle racist state and local institutions via the provisions of the Civil Rights Act of 1964. Second wave feminism achieved similar victories with Title IX prohibiting sex-based discrimination in education. These acts served as ready precedents for Federal legislation barring discrimination based on any condition, including disability.

The activist culture of the era was represented in the New York-based Disabled in Action, and the Berkeley-based Center for Independent living. These groups organized by people with disabilities took as basic axioms that they were worthy of political inclusion. The first barrier to their well-being was the prejudiced to indifferent attitudes of government institutions, which refused to make even minor adjustments necessary to include their members (Shapiro, 1994).

In this climate, the regular reauthorization of the Rehabilitation Act in 1972 became an opportunity to expand the framework of civil rights to a government program that had previously been concerned with welfare and rehabilitation. According to a Government Account Office report on vocational rehabilitation services, the bill's sponsors intended to streamline various programs and expand access, but did not specifically intend to address civil rights. As the bill neared completion, staffers were concerned that individuals who had completed rehabilitation would not be properly

integrated into society. An unknown person suggested that an anti-discrimination provision similar to the Civil Rights Act or Title IX would be a worthy addition to the bill. “Roy Millenson of Senator Javits’ staff had been involved in the development of the Education Amendments, and he ran out to his office and brought back language from Title VI [of the Civil Rights Act]. The language was adapted and inserted at the very end of the Rehabilitation Act. In the version of the bill that was ultimately enacted, that provision became Section 504” (Scotch, 2001, p.52). According to Scotch, Section 504 was drafted by staffers without input from the disability activist community and passed both houses of Congress without significant debate. Though President Nixon refused to sign the bill, his objections were over the expense of the program, not any new legal rights that might be created. An amended bill, decreasing the funding allocated, was finally signed into law on September 26, 1973. During the writing and passage of the bill, Section 504 was largely an afterthought; the details of how the regulation would be promulgated and enforced would determine its power.

Section 504 states “No otherwise qualified handicapped individual in the United States, as defined in section 7(6), shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance” (Rehabilitation Act of 1973). This portion of the 1973 Rehabilitation Act did not specify an agency responsible for determining when discrimination was occurring and redressing it, unlike the prior civil rights legislation that inspired the law. Though the Department of Housing, Education, and Welfare (DHEW) continued to administer the rest of the law, it declined responsibility for Section 504, passing it off to the Office of Civil Rights (OCR)

in the Department of Justice (Scotch, 2001, p. 61). The OCR was staffed by crusading lawyers with an absolutist attitude towards civil rights, rather than the consensus and program building bureaucrats who had previously administered rehabilitation programs. Over the next two years, lawyers from the OCR began drafting specific regulations for enforcing Section 504 in concert with disability rights activists. One major achievement was a redefinition of handicapped persons for the purposes of the act from those whose disability limited employment and could be remedied with rehabilitation to any person who “has a physical or mental impairment which substantially limits one or more of such person’s life activities” (Rehabilitation Act of 1973, Section 111a). More important was a spreading awareness that new civil rights for people with disabilities was immanent, and had been given to an agency that had a record of ignoring arguments from enforced parties based on expense or impracticality (Scotch, 2001, p. 70).

Through 1975 and 1976, there was growing dissension within the DHEW bureaucracy about the scope of Section 504. Secretary David Matthews disagreed with the OCR’s inclusion of alcoholic and drug addicts as impairments, seeing a hazard that they would take resources away from more deserving ‘traditionally handicapped’ people. Secretary Matthews slowed the implementation of Section 504 by requiring an outside cost/benefit analysis of Section 504, which eventually concluded an overall benefit of \$300 million, with the major costs of expanding access to education offset by economic growth and reduced redundancy in delivery of services (Scotch, 2001, Appendix D). A contentious public commenting process and series of town hall meetings in August of 1976 failed to produce decisive action on the bill, and Secretary Matthews delayed any decision until the Carter administration entered office. The new administration replaced

him with Secretary Joseph Califano. Califano decided that he and the new administration needed to review Section 504. The further delay angered disability rights activists who had become more organized, and well-informed of the scope of the act by the public comment period and informal contacts with the OCR (Scotch, 2001, p. 106). On April 4, 1976, a nationwide coalition of disability rights activist groups, bridging regions and traditional sections of the disability rights movement (blind, deaf, disabled veterans, etc), began occupying DHEW offices. Califano was publically conciliatory in statements, but privately regarded the sit-in protests as an insult (Scotch, 2001, p. 113). Protestors left the Washington DC DHEW headquarters after 28 hours, but in San Francisco a well-supported group of disability rights activists, in alliance with the Black Panther Party, labor organizations, and the gay rights movement, occupied local DHEW offices for over three weeks (Schweik, 2013). Secretary Califano capitulated on April 28th, signing strong regulations that prohibited discrimination against people with disabilities.

Section 504 is important because it is the foundation of the rights-based approach to disabilities enshrined in the Americans with Disabilities Act. Yet, as the legislative history shows, it was created and passed without particular deliberation, or the explicit participation of a broadly based disability rights movement, which arose as a national entity during the rule-writing process. In particular, Section 504 was the first significant disability rights legislation to apply to institutions of higher education, and was passed in its strongest form despite significant opposition from the American Council on Education (Scotch, 2001, p. 123-126). After 1976, right-based disability programs disseminated rapidly through American higher education, assisted by training grants from the OCR and private foundations. The absolute and radical character of rights based initiatives offered

a clear counterpart to bureaucratic concerns over cost of implementation and programmatic inertia, while leaving room for substantial diversity in implementation at institutional and individual levels.

Accommodating Individual Equality in Education

The second major change in legal status for people with disabilities was the enactment of the Equal Education for All Handicapped Children Act of 1975 (EAHCA), which was reauthorized as the Individuals with Disabilities Education Act in 1990 (IDEA), and further expanded in 1997 and 2004. The legislative history is one of continuity, and minor changes to further focus the law on educational improvement, and then bring it into compliance with No Child Left Behind (Blackwell & Rossetti 2014). The EAHCA was passed as a Congressional response to two lawsuits on behalf of disabled children against school districts, *Mills v. Board of Education* (1972) and *PARC v. Penn* (1972), which concerned disabled children who had been excluded from public education. In *Mills*, parents of a group of African-American children in Washington DC, described how their children been denied admission to or necessary aid in public schools, in violation of local law. The defense argued that necessary provisions for all disabled children would be too difficult and expensive to implement, without vastly increased funding or decreased services for the general student population.

In a ruling that cited *Brown v. Board of Education*, the court found that access to state-provided education is a basic right that must be made available to all under the Equal Protection clause of the 14th Amendment. The court's decision reiterated the school board's responsibility to educate all students. It required them to conduct a census of children with disabilities who were not being educated, to create programs to provide a

free and suitable public education regardless of the degree or kind of a child's disability, and establish provisions for disciplinary hearings and public notification of the changes to the African-American community.

Mills concerned an abeyance of government duties in violation of statute, but *PARC* concerned sections of the Pennsylvania law which transferred responsibility for children certified as "uneducable and untrainable" by a school psychologist from the school to the Department of Welfare, which had no educational obligations. The plaintiffs sued under a tripartite argument the process for denying admission to schools lacked due process of law, that assuming that mentally disabled children would not benefit from education did not meet a rational basis in fact under the Equal Protection clause of the 14th Amendment, and the entire section of law violated a Pennsylvania State Constitutional requirement for universal public education. The court accepted all of these claims without dispute, seeing the case as standing in firm constitutional ground. Testimony from four experts in public education reaffirmed the positive influences of education for even severely disabled students and reiterated a history of underfunded special education programs used to exclude disabled children at minimum cost to society, rather than to help them reach their potential.

The final decision overturned Pennsylvania laws which previously allowed schools to exclude disabled students arbitrarily, replacing them with a rigorous hearing process before a special officer where parents were represented by counsel, cross-examined school witnesses, and could introduce their own evidence. Pennsylvania was required to provide "access to a free public program of education and training appropriate

to his learning capabilities” to all students, either in public schools or by providing equivalent financial support for private or at-home education.

With 28 similar lawsuits working their way through courts, and state level school officials complaining that they did not have the resources to abide by likely judicial decisions, Congress resolved the issue by writing the recommendations of *Mills* and *PARC* into law (Coates, 1985). The bill opened by explaining its purpose as remedy the injustices faced by 8 million disabled students in the United States, four million of whom were underserved by the existing educational system, and one million excluded entirely, the EAHCA established the right of students to a ‘free and appropriate public education’ including specialized designed instruction and support services, at no additional cost to parents. The EAHCA established a system of grants to states to pay for increased services, starting at an additional 5% of the average cost to educate a pupil in 1978, to 40% of the cost for 1982 onwards. The 40% above the average per-pupil costs remains in the current law (Individuals with Disabilities Education Improvement Act of 2004). In 2014 the total Federal expense of IDEA grants was \$12.6 billion, out of a total Department of Education \$71.2 billion, including \$22.8 for Pell Grants (US Department of Education, 2014).

The EAHCA enshrined the Individualized Educational Plan (IEP) as process by which the right to a free and appropriate education would be enacted. The IEP is a document pertaining to the unique circumstances of a disable student, which included a statement of educational goals, accommodations, and progress made, repeated on an annual basis by a committee consisting of the teacher, parents, student, and any relevant experts. If parents felt their rights were no being respected, they had the right to

arbitration by a non-educational party, with written testimony, cross-examination, and the ability to escalate to civil suits if an accord could not be reached (Education for All Handicapped Children Act of 1975).

While Congress intended to support education of children with disabilities, it did so without specifying which accommodations represented a substantive version of an ‘appropriate education’ in the terminology of the law. In the 1982 case *Hendrick Hudson District Board of Education v. Rowley*, the Supreme Court determined that the EAHCA required schools to demonstrate that their efforts permitted the child *to benefit educationally* from that instruction and were in compliance with the procedures of the IEP (Coates, 1985). Procedural correctness became a proxy for the difficult business of determining the effectiveness of an IEP. Writing on legal best practices for IEPs, an article by Drasgow, Yell, and Robinson reiterates the importance of notifying parents of IEP hearings, make sure that appropriate experts are present along with administrators and general and special education teachers, and above all, following a program of evaluating the student’s disability, developing measurable educational goals, and clearly delineating responsibility for providing services (Drasgow, Yell, & Robinson, 2001).

A current assessment of the IEP notes that while it is the cornerstone of special education in America, major difficulties remain: Even though the basic framework of the law is 40 years old, schools still have difficulty with the paperwork requirements, convening effective IEP team meetings, and ensuring that the results lead to the standards of educational achievement and inclusion of the IEP student within the general education curriculum and school activities. Observations of IEP meetings and surveys of parents indicate that teachers have a greater influence on IEP development conversations than

parents or students, using their technical authority to foreclose meaningful debate and active participation. The ability to use specialized terminology about learning disorders, and to compare the child at hand to similar cases and targets for normal progress, appears to carry more authority than the personal biases of parental love in determining what is best for the child (Blackwell & Rossetti, 2014).

The EAHCA recognizes that a right to inclusion was meaningless absent the ability to be included. EAHCA included mechanisms for a top level distribution of funds to remedy individual exclusion from the educational system, as well as indicating institutional best practices to ensure that children were not just granted the right to be educated, but also made meaningful progress towards adulthood regardless of their level of disability. The IEP offers a technique for normalizing difficult individuals to a general expectation of educational involvement, but this right to a free and appropriate public education, as filtered through the mechanisms of procedural correctness, is far from absolute. Studying Southern California schools, Ong-Dean noted a clear difference in approach towards IEPs and special education across class and race: a “high-road” used by primarily white upper-middle class professionals to gain access to additional resources, and “low-road” imposed on black and Hispanic lower-class parents by schools in order to control and discipline problem students away from the general population (Ong-Dean, 2009).

The EAHCA and IEP matter because they solidified the right to public education as a basic component of citizenship and the prelude to an economically, politically, and socially successful life. However, unlike the strict ‘civil rights’ status of Section 504, the EAHCA and its successors mandated a transfer of funds from the Federal government to

the states, along with a single national process for deciding when those rights had been met. The EAHCA established that schools could not arbitrarily exclude students, had to take a census of students that had been previously excluded, and must provide individualized plans to ensure that each student garnered some educational benefit from education. Though framed in the discourse of rights, the actual IEP is an expert-driven, scientific and legalistic procedure, based on diagnosis and assessment of difference, drawing up of goals and means to meet those goals, and constant measurement and adjustment throughout the student's educational career. Though more inclusive of the disabled individual than previous models, the IEP is still biased towards the institution, as the count of participants shows: general education teacher, special education teacher, administrator, and relevant experts on the side of the school; parents and if the student is 14 or older, the student, on the side of the child. The school defines what counts as expertise, observation, measurement, and progress. Though the IEP represents a gateway by which rights may be accessed from the state, in a manner properly defined and protected, passing through that gate requires buying into the terms and ideology of the educational system.

Though colleges are not required to follow the IEP process, it is a standard practice in the field of higher education, which disabled students understand and if they are entering college will be followed in form by the Disability Resource Center. The DRC process involves fewer people and formally mandated confrontations of evidence. At Arizona State University, diagnosis, goals, and accommodations are negotiated

between the student and a DRC counselor on a semester-by-semester bases.³ As a model, the IEP provides a process wherein teachers can bring their concerns to parents in a procedurally defined setting without emotional or moral valences, and have those concerns addressed through the technical expertise of external committee members. An IEP relevant diagnosis, such as ADHD, is not a judgment passed on the child, but a means to translate the concerns of teachers--classroom disruption, and parents--future consequences for a lack of studiousness, into a course of action with positive results continually reaffirmed by measureable progress towards mutually agreed upon goals.

The Americans with Disabilities Act: Running out of Rights

The Americans with Disabilities Act of 1990 (ADA) represented that last word in the expansion of civil rights for people with disabilities. Building on prior legislation, including laws mandating accessible buildings, public housing, and voting, the ADA represented a comprehensive expansion of the rights of people with disabilities to all areas of life, including employment, private businesses, public transportation, and telecommunication networks. The ADA begins with a nine part statement of purpose, grouped into three thematic areas: First, people with disabilities have historically been excluded from American public life by social prejudice and infrastructural barriers; Second, it is appropriate for Congress to remediate this inequality of opportunity by creating a law against exclusionary standards; Third, this law will be of net benefit to society by reducing dependence (Americans with Disabilities Act of 1990).

³ From my time with the DRC, summer 2012.

Unlike Section 504 or the EAHCA, the legislative process behind the passage of the ADA was a deliberate and conscious expansion of disability rights through a broad-based democratic process. The 1980s were a decade characterized by stasis and small reversals under the anti-regulation Reagan administration (Switzer, 2003, p.83). As the disability rights legislation of the 1970s was implemented, it became apparent to an increasingly professional network of disability rights activists and regulators that a comprehensive solution was needed. The National Council on Disability, a small independent agency created by the Vocational Rehabilitation Act of 1973 that created Section 504, drafted a report *Towards Independence* that used the language of President Reagan to argue for replacing the patchwork of disability laws with a single civil rights standard to provide equal opportunity (National Council on Disability, 1986, p.11). *Towards Independence*, and a follow on report *On the Threshold of Independence*, served as a first draft for a 1988 version of the ADA, that was stalled in committee by pressure from the Reagan White House.

Despite this early setback, disability rights advocates persisted, building links between the leading advocacy groups Disability Rights Education and Defense Fund and the Consortium of Children with Disabilities, along with numerous smaller groups, on the basis that everybody would work together to advance the rights of people with disabilities as a united body and would reject any law that preferentially benefited or harmed specific groups. Coalitions were also formed with parents of children with disabilities and disabled veterans, groups that had mostly worked independently. Activists sought support from the extreme left and right, pairing with HIV positive activist groups at the height of the AIDS panic, and Right to Life groups concerned about the possibility of selective

abortion for pre-natal diagnosis of disability (Switzer, 2003, p.88). This broad coalition was helped by a “hidden army” of legislators whose lives had been touched by disability, including Vice President (and, later, President) George H.W. Bus. It also used a deliberately low-key strategy that avoided tense confrontation and enumeration of explicit costs to the bill (Switzer, 2003. Shapiro, 1994). An amendment by Senator Hatch of Utah to provide a tax break to small businesses affected by the bill was voted down as an unnecessary complication. The bill was opposed by a coalition of business and small government ideologues, but this group was too disorganized to counter the effective framing of the law as a proper allocation of rights to the most deserving of excluded groups. The Americans with Disabilities Act was passed by strong majorities in both the House and Senate and signed into law on July 26, 1990.

The general rule of the ADA was that “no covered entity shall discriminate against a qualified individual with a disability” (Americans with Disabilities Act of 1990), either in employment or access to public accommodations, including many businesses. Discrimination was broadly defined, including explicit or de facto segregation and limits to opportunity, status, or enjoyment of services. Not providing “reasonable accommodations” was also determined to be segregation. The precise limits of “reasonable accommodation” and “undue hardship” was left unspecified by the ADA, leaving the Supreme Court to substantially clarify and narrow the definitions of reasonable and hardship. The ADA also defined disability as broadly as possible, as “a physical or mental impairment that substantially limits one or more of the major life activities of such individual; or a record of such impairment; or being regarded as having such an impairment.” This broad definition excluded several standard categories of the

‘undeserving’, such as drug addicts and sexual deviants, who were explicitly banned from using the provisions of the ADA to seek redress for their problems.

The ADA did not precisely define what a covered disability was, or mandate a specific hearing process for forming accommodations. Rather, it gave every private individual the right to apply to the Equal Employment Opportunity Commission for redress, and to sue for civil damages of up to \$40,000 if they believed that they had been discriminated against in employment. In practice, this suit required a three-part process of proving that the plaintiff had a disability, could perform the job they sought, and were excluded from the job because of their disability (Mayerson & Mayer, n.d). A trio of cases brought before the Supreme Court in 1999 turned on the question of whether a disability that had been medically corrected could still be regarded as a disability and protected under law. *Sutton v. United Airlines* concerned sisters who were pilots with poor vision (20/200 uncorrected, 20/20 corrected) and who were denied an interview with United Airlines on the basis of their poor uncorrected eyesight. In the opinion for the court, Justice O’Conner wrote: “The use of a corrective device does not, by itself, relieve one’s disability. Rather, one has a disability under subsection A if, notwithstanding the use of a corrective device, that individual is substantially limited in a major life activity” (O’Conner, 1999). Arguing that with corrected vision, the petitioners were not disabled under the ADA, but that United Airlines was still justified in refusing to hire them, she continued: “By its terms, the ADA allows employers to prefer some physical attributes over others and to establish physical criteria. An employer runs afoul of the ADA when it makes an employment decision based on a physical or mental impairment, real or imagined, that is regarded as substantially limiting a major life activity... [I]t is free to

decide that some limiting, but not substantially limiting, impairments make individuals less than ideally suited for a job” (O’Conner, 1999): *Murphy v. United Parcel Service* and *Albertson's, Inc. v. Kirkingburg* followed the Sutton reasoning; in cases concerning a postal worker with hazardously high blood pressure and a truck driver with monocular vision respectively, the court found that impairments were significant enough to serve as ground for dismissal, but not disabling enough to qualify the plaintiffs for protection under the ADA.

This obscurity of application has bedeviled the ADA to a greater extent than Section 504 and EAHCA and successors. As a flagship piece of legislation, the ADA is applicable to many more areas of public life. What was intended as a clear issue of justice instead has become a complicated legalistic slicing of applicability and definitions. While some major areas of accommodation were well addressed, such as wheelchair accessibility, the ideal that a person with a disability has an inherent worth that cannot be infringed by circumstances runs up against the ability of employers to define the limits and duties of a relevant job and select candidates on the basis of ability. The principle that everyone is accorded equal rights by society runs up against the practical limits that recognition of these rights requires political and economic labor and a rebalancing of responsibility that existing sources of power find bedeviling.

The fear that the ADA would unduly burden small businesses by forcing them to rebuild expensive accommodations for all their customers and employees has not been born out. Although there have been isolated examples of lawyers using disabled clients to find non-compliant businesses and extract fees, as in Robert McCarthy, a ‘professional litigant’ who has filed hundreds of ADA suits over 14 years (Stapley, 2015), more than

75% of ADA claims are decided against the disabled party (Colker, 2002). In real terms, the 25 years since enactment of the ADA have not seen demonstrable rises in the quality of life for people with disability; they are still poorer and suffer from worse health outcomes than the population at large. The ADA has attracted critics from within the disability services field. For example, two professors of social work argue that it further isolates people with disabilities within a protected class rather than appropriate mainstreaming them, protects shirkers under fraudulent disabilities, and trivializes real disabilities (Karger & Rose, 2010). This assessment is a matter of opinion, rather than hard evidence, but demonstrates the difficulty in matching ideals of inclusion to legislative means and life outcomes.

Conclusion: Between Rights and Biopolitics

The three laws that I have discussed in this chapter concern the evolution of the legal inclusion of people with disabilities in society from 1973 onwards, and about the appropriate form of recourse if someone is not included. This language takes the form of a rights discourse, because rights are the philosophical form by which American law in the late 20th and early 21st century justifies its existence as properly articulating natural rights, but that in practice these laws are enacted in a mode of biopolitics, about the management of the population as productive organisms rather than self-governing citizens.

America is a nation founded on rights; with the beautiful poetry of the Declaration of Independence grounding the sovereignty of the new nation in the self-evident truth that all men are created equal, and all have the rights to life, liberty, and the pursuit of happiness. The Constitution sketched out a balance of powers between the three branches

of government, and the Federal government and the states. The Bill of Rights sharply limited the power of the Federal government to infringe on individual liberties. This original basis of rights, grounded in the theories of Locke and Rousseau, was to protect the inherent dignities of man against the overbearing and arbitrary exercise of political power. Rights originate from a source prior to any specific legal enactment: the specific proposals of the Bill of Rights were a development and enactment of the innate and self-evident truths proclaimed in the Declaration of Independence. This independent quality distinguishes rights from laws, which under the theory of legal positivism owe their legitimacy to a pedigree: enacted by Congress, proclaimed by the king, signed by the President, assented to by an assembly of townsmen. Dworkin defines rights as a kind of political trump-card, used by an individual to counter a demand that in the name of the public good, they be prohibited doing what they wish, or for having some loss or injury imposed upon them (Dworkin, 1978, p. xi).

The area encompassed by rights has expanded since the early days of the Republic. The original Bill of Rights protected against explicit government intrusion in a variety of key areas, but this single dimension of protection against explicit actions was insufficient to guarantee the exercise of rights in practice. The 14th Amendment recognized that rights could be infringed by unequal application of law, by arbitrary process, and that rights beyond those enumerated in the Bill of Rights existed and could be recognized and protected by law. Dworkin defines the most basic right as the right of concern: that human beings are entitled to a minimum of respect, and that this amount of respect should be equal regardless of social standing (Dworkin, 1978, p. 185-222).

American laws are typically written using a discourse of rights, but they are enforced and enacted in a framework of biopolitics, particularly when the matter at hand concerns the life course and biological categorization of citizens. The language of Section 504, the most simply defined and rights oriented of the laws discussed, still limited its scope to disabled individuals denied employment and who could be reasonably be expected to benefit from rehabilitative services. Subsequent laws, developed in light of experience with Section 504 of the 1973 Rehabilitation Act, more precisely defined the process by which eligibility under the law would be obtained; creating the sub-populations that are the targets of biopolitical exercises in growth.

As part of his archeological project on the state, Foucault distinguishes a shift from ancient sovereign power to modern regulatory power. The ancient state was defined by its power to seize through violence; a sword-wielding sovereign that could levy fines, recruit armies, and kill in necessary self-defense. Sovereign power was a historical fact based in command of arms, and a juridical theory justified by the existence of more rapacious sovereigns beyond the borders. In Foucault's reading of Hobbes, polities designated a sovereign to protect their lives, granting their own rights to death to a common power. Life existed outside of power and politics, but was the foundation upon which political theory was debated (Foucault, 1976, p.63).

The governing innovations that lead to modernity, and indeed government itself in the second half of the 18th century, was a new form of power based on the ability to organize, regulate, optimize, and generate. The power to kill was replaced by the power to foster life, or conversely disallow to the point of extinction, pathological forms of life. The sovereign's sword, while not eliminated, was encrusted with a layer of norms,

institutions, and techniques of knowledge, which worked on the twin poles of the new government. The first of these poles was the anatomo-politics of the human body, “centering on the body as a machine: its disciplining, the optimization of its capabilities, the extortion of its force” (Foucault, 1990, p. 139). The second pole was the biopolitics of the population, the regulation of the entire population according to statistical measures to ensure the proper levels of births, deaths, disease mortality. The existence of Man as a species beyond the existence of any individual man.

Biopolitics creates an inversion of the traditional relationships of statecraft, life, and death. Whereas under the old order, life was that residue left over by the exercise of sovereignty, in the modern order “life itself” is the center of a political terrain described by a boundary of death (Esposito, 2013). Much subsequent scholarship in biopolitics has focused on singularities; circumstances where the intertwining of politics, life, and death become most apparent. This can be found in Agamben’s (1989a) linkage of liberal democracy and mid-20th century totalitarian states, through their common obsession with *zoē*—bare, anonymous, natural, animal life. Human beings are treated as bodies with natural rights, rather than as citizens with political rights. Liberal democracies try to transform this bare life into political life; totalitarian regimes attempt to purify the national body through the death camp. Both rely on the same understanding of the politics of life and death. Similar examples in the literature include various states of exemption; death camps, colonial regimes, famines induced by market forces (Montag, 2005). These states of exemption are illuminating cases of the ultimate limits and logics of biopolitics, but not particularly relevant to the experiences of the American middle class, nor indeed the vast majority of people who live in well-ordered states rather than

states of exemption. Rather, through the creation of new rights defined in terms of medical/economic disabilities, the state normalizes a form of citizenship in which citizens may participate only by first demarcating their biological difference.

Law	Definition of Disability	Legal Remedy or Correction
Vocation Rehabilitation Act of 1973 Section 504	7(6) The term "handicapped individual" means any individual who (A) has a physical or mental disability which for such individual constitutes or results in a substantial handicap to employment and (B) can reasonably be expected to benefit in terms of employability from vocational rehabilitation services provided pursuant to titles I and III of this Act	No handicapped individual may be excluded from or discriminated against by the Federal government, or an entity which receives Federal funds. Regulations written and enforced by the Office of Civil Rights in Department of Justice
Equal Access to Education for All Handicapped Children Act of 1975	in paragraph (1) thereof, by striking out "crippled" and inserting in lieu thereof "orthopedically impaired", and by inserting immediately after "impaired children" the following: ", or children with specific learning disabilities,"	Access to a "free and appropriate public education" through the Individualized Educational Plan, census of underserved handicapped students, and legal requirements that State abide by this act or lose funding. IEP process mandates special resources as decided by a committee of experts, with proper notification and appeal, including modified instruction, assignments, transportation, and assistance.
Individuals with Disabilities Education Act of 1990	"(1) The term 'children with disabilities' means children— "(A) with mental retardation, hearing impairments including deafness, speech or language impairments, visual impairments including blindness, serious emotional disturbance, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities; and "(B) who, by reason thereof need special education and related services."	As above, with greater funding for assistive technology devices and research into special education best practices and assessment. Regulations maintained by Department of Education
Americans with Disabilities Act 1990	(2) Disability The term "disability" means, with respect to an individual - (A) a physical or mental impairment that substantially limits one or more of the major life activities of such individual; (B) a record of such an impairment; or (C) being regarded as having such an impairment.	Employers may not discriminate in hiring, and must provide "reasonable accommodations" to allow disabled workers to continue in their job. EEOC manages complaints for workplaces. If this fails, employees can sue for up to \$40,000 in damages. Similar provisions cover public transit and private businesses.
Americans with Disabilities Act 2008	(1) Disability The term "disability" means, with respect to an individual— (A) a physical or mental impairment that substantially limits one or more major life activities of such individual; (B) a record of such an impairment; or (C) being regarded as having such an impairment (as described in paragraph (3)). (2) Major life activities (A) In general For purposes of paragraph (1), major life activities include, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, talking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working. (B) Major bodily functions For purposes of paragraph (1), a major life activity also includes the operation of a major bodily function, including but not limited to, functions of the immune system, normal cell growth, digestive, bowel, bladder, neurological, brain, respiratory, circulatory, endocrine, and reproductive functions. (3) Regarded as having such an impairment For purposes of paragraph (1)(C): (A) An individual meets the requirement of "being regarded as having such an impairment" if the individual establishes that he or she has been subjected to an action prohibited under this chapter because of an actual or perceived physical or mental impairment whether or not the impairment limits or is perceived to limit a major life activity.	Expansion of definition of disability following narrowing of definition in Supreme Court cases.

Table 1: Comparison of Definitions of Disability and Legal Remedies

3. ACCOMMODATIONS IN EDUCATION

The previous chapter discussed the creation and management of disabilities through the lens of discrete rights and the biopolitical management of population as delineated by federal laws and policy-making in the Department of Education. The next chapter will discuss the perceptions and ethical reasoning of college students on the frequency and use of stimulant medication to study. Between these two subjects, the broadest federal policies and the daily lives of students, there exist the institutional structures and reasoning of colleges themselves. Colleges serve many purposes: the production of different kinds of credible knowledge, from experimental verification to humanistic exploration, the intellectual discovery of scholars, and most relevant to this section, the development of students for the rest of their lives, both as individuals and as a continually changing cohort of future leaders and professionals.

Universities have many missions under the umbrella of higher education. To cite an example at hand:

ASU is a comprehensive public research university, measured not by whom it excludes, but by whom it includes and how they succeed; advancing research and discovery of public value; and assuming fundamental responsibility for the economic, social, cultural and overall health of the communities it serves (ASU Charter, 2015).

Inclusion, the pursuit of knowledge, the well-being of all aspects of the student body and the communities to which they belong, are all indicated as objectives. Beyond perpetuating themselves, universities have a mission of perpetuating and improving the

societies that support them. In the previous chapter, I described the biopolitical processes of sorting and categorizing populations which undergird modern forms of government.

Universities have a unique finishing role in the biopolitical mode, serving as a place to specialize and order students, by major, by grade point average, by participation in extracurricular associations and activities. Compared to the progression through primary and secondary education, which in America is universally accessible and standardized at the state and Federal level, this process is primarily self-directed by individual students. Once a student has made it past the initial gatekeepers at the admissions office, their choice of majors and classes is entirely their own. Even more freedom is provided by the curricular structure of electives used by most colleges, rather than a mandated core (Bastedo, 2011). A student's success, in college and afterwards, is seen as determined by their own effort, wisdom, and innate talent.

Access is a necessary component of fairness, the basic first step that accommodations at the Disability Rights Center (DRC) are designed to produce, but access as a value is also antithetical to competitive meritocracies. At some point, success at earlier stages of education is required to benefit from the later stages; the curriculum is cumulative. For the competition to be meaningful, it must be between equally matched competitors. Opening up the university has been one a major goal of university admissions policy since World War II and the G.I Bill, which allowed millions of veterans to attend college when it would have previously been out of reach, financially and socially. Contemporary policy around diversity and the cost of college is conscious choice about a social need for access to higher education to be potentially available to all, and not a reproduction of the current elite (Crow & Dabars, 2015).

The section that follows will look at what the implementation of disability accommodations actually entails, and how accommodating ADHD fits into educational frameworks that I describe as *liberal* and *neoliberal*. The principles of liberal education as expert-guided self-discovery were laid out by philosopher John Dewey and included the scientific evaluation of students to match their strengths, weaknesses, and interests with the lesson plan. Neoliberal education furthers that individual bent, while increasing the stress laid on competition and efficiency. ADHD becomes a way to claim liberal rights to be included and a way to relieve some of the systemic pressures of neoliberalism.

Making Accommodations

The previous chapter discussed the legal foundations of disability rights. This section goes into the work of enacting disability rights through the services of the ASU Disability Resource Center (DRC), where I did fieldwork in the summer of 2011. This was not the optimal time to observe how the DRC worked, as the campus is a veritable ghost-town due to students being on summer break, and confidentiality prevented me from observing the few interactions with students that did occur. I was able to glean some insights from interviews with the staff, and the physical equipment on hand.

The phrase “level playing field” is key to understanding the DRC. Every single one of the employees at the DRC who I discussed my research with in my fieldwork there used that exact phrase to describe the purpose and goal of their work. Implicit was the idea that the playing field was not really level, and that the competitive tasks of higher education selected against students for reasons that were essentially arbitrary.

At some levels, this is trivial. The design of a building may make it impossible for a student in a wheelchair to get to a lecture hall or use a lab bench, when they are perfectly capable of doing the relevant tasks. But as services extend from physical disabilities to sensory and intellectual disabilities, the philosophy of the “level playing field” becomes increasingly abstracted. Services provided by the DRC include note takers, possibly freeing a student from paying attention during lecture, although they do need to be physically present or medically excused to receive their notes. The most common DRC accommodation involves testing; in a quiet and more ergonomic room, or with additional time on the test. DRC staff reiterated that their work “does not alter the fundamental nature of the classroom or an assessment.” Given that competition in distracting environments or under severe time pressure are not considered core skills in higher education, these accommodations do not seem unduly beneficial.

Aside from testing accommodations, the most visible DRC services create access through technology. A busy room of undergraduate employees is on hand to scan and convert textbooks for speak-to-text readers for visually impaired students. For those with the right keywords, the DRC is a veritable toyshop. The centerpiece of a tour of the DRC, which I went on as an IGERT fellow and again during the summer, is the computer lab filled with new Mac and Windows PCs, all loaded with specialized software to enable students with disabilities to highlight papers in many different colors, dictate papers rather than type them, or zoom-and-enhance on large screens. A second infrastructural access is the DRC cart program, which can with a doctor’s note and a phone call whisk students between dozens of drop-off points on a customized shuttle to match classes.

Walking a mile between classrooms in a passing period represents an undue burden to some students with mobility impairments.

DRC counselors schedule meetings each semester with their clients, to ensure that their accommodations are up to date, that they have the resources necessary to succeed, and that they have an individualized plan for each of their classes. While the IEP (Individualized Educational Plan) is not legally mandated for DRC counselors, and the key bureaucratic features of a meeting involving educators, specialists, parents, and the student is absent, the basic logic of the IEP is carried through.

“We are not diagnosticians” was a statement emphasized by DRC counselors, second only to “level playing field.” Counselors left determination of the exact nature of a student’s disability to the student’s medical team. This division of responsibility struck me as odd at first. Shouldn’t there be continuity between deciding what is wrong with a person, and what might help them succeed? In my own research, this break in responsibility was the gap by which stimulant medication entered campuses. However, in the broader field of managing disabilities in higher education, it is necessary. Medical gatekeepers are interested in an accurate description of their patient and have no relation to an educational mission. DRC counselors must treat the individual in front of them as a ‘case’, as an exemplar of a predefined problem found in many people, which, via the legal mechanisms of Section 504 and the Americans with Disabilities Act, has become a protected class. They can adjust the means by which they treat the case, but they cannot adjust the case itself.

As long as the paperwork is properly filed, using terms defined in medicine but acted upon by social workers, then the institution’s duty to its students to ensure fairness

among the student body is met. Splitting up the biological case, the legal accommodations, and education merit among doctor, DRC counselor, and professor, is an institutional division of responsibility that ensures that ultimately, the student is responsible for his or her own care and success. As the unitary body in this arrangement, they are the only place where responsibility cannot be passed off to someone else.

But I was never able to receive a satisfactory answer to the question, “How do you know when the playing field is level?” Given that students working with the DRC should be able to achieve the full range of grades, it is difficult to untangle how much of a success or failure is due to internal factors under the student’s control, such as study habits and mastery of the material, which are the proper foci of competition and merit, and how much is due to the external assistance of the DRC. Understanding the full meaning of the level playing field and the work of the DRC requires thinking about two sets of values in education.

Liberal Values in Education

The development of education values in 20th century American education can be made legible through the work of its primary philosopher, John Dewey. Dewey developed a theory of education that linked the moral development of the individual to his or her future civic participation via a progressive, i.e. scientifically designed and continually improving, curriculum. Dewey’s theories rejected the prevailing wisdom of assign-study-recite and a strictly structured classroom in favor of creating an environment where the student could follow their own preferences and interests, with the teacher ideally serving as a guide and facilitator of learning, rather than an instrument of discipline and conformity. Universal education in this manner is fundamental to

democracy, as only an educated and morally developed population is capable of governing itself. Scientific teaching serves to individually guide students towards flourishing and self-fulfillment, through a process that aligns student interests with the proper materials and experiences in an ecosystem of learning. Teachers are therefore friendly but disinterested professionals, supporting the development of all the skills necessary for modern society, particularly “learning to learn”, while also ensuring a basic level of moral development (Archambault, 1964).

Dewey conceives of education as a *process* [his emphasis], which starts with each individual student as they are, with their predispositions in attitude, ability, and existing knowledge, but which must involve the guided development “towards more effective techniques, towards greater self-reliance, towards a more thoughtful and inquiring disposition, one *more capable of persistent effort* in meeting obstacles” [emphasis mine] (Dewey, 1934). The process is horizon-like. An end-state that might be deemed “educated” is not the student as graduate, finished product of an educational factory, but the continual learning of new skills and knowledge. Science, as conceived of by Dewey, was both the model and central content of learning. The structure of “observation, inquiry, reflection, and testing that are the heart of scientific intelligence” (Dewey, 1938) is both how students are supposed to be educated, and what they are being educated to achieve. In an era that Dewey calls out as being disrupted in every aspect by scientific and technological changes, only scientific modes of thought can enable learners to link values to conditions, causes, and facts. Constant testing and improvement of curriculum and assessments from rational first principles, rather than holding to tradition, assures relevance of education under systems of change.

If scientific understanding was the epistemic backbone of Deweyian, progressive education, the direction of impulses and emotions into rational expression of the self is its ethical core. “Both desire and effort are phases of self-expression arising whenever it becomes so complex that the ends, the self to be expressed, and the powers at hand, the means of expression, do not directly coincide with one another” (Dewey, 1896). Ideally, a student is fully engaged in the task at hand, but most classroom experiences teach the level of inattention that can be maintained while still passing the test. This inattention is the gap through which errors which prevent a learner from achieving lifelong self-fulfillment propagate.

Education must be prosocial, guiding students towards a better sense of how they might contribute to their communities and the sum total of humanity. Hands-on learning was necessary to bridge the tensions of Dewey’s rapidly industrializing middle-class America, where traditional divides between the laboring and aristocratic classes no longer applied. All students needed both hands-on experience to learn how the new things of the world worked, and the reflective and expressive space of the liberal arts education traditionally reserved for the elite. “When the school introduces and trains each child of society into membership within such a little community, saturating him with the spirit of service, and providing him with instruments of effective self-direction, we shall have the deepest and best guaranty of a larger society which is worthy, lovely, and harmonious” (Dewey, 1899). The Deweyian ideal translates the virtuous republic dreamed of by the Founding Fathers into an actionable plan, translatable across the continent and capable of being administered by a cadre of scientific professionals, their civic calling allied with specialized and ever-improving knowledge.

Dewey's concerns with attention, desire, and effort closely match George Still's 1902 description of a proto-ADHD as a deficit of moral will. Without the ability to control base animal pleasures, balance the wants of the individual against the good of the group, and consistently hold to a 'scientific' cycle of observation and analysis, a learner could not benefit from education or achieve true flourishing. Against this, the scientific, optimistic, and progressive ethos of Dewey's vision of education argued that any student could be helped. An alliance between teachers in classrooms and scientific and medical experts could meet any individual where he or she was, and guide him or her into full civic participation no matter how profoundly disabled; at first in specialized hospital-schools, then included in mainstream education after the accomplishments of the disabilities rights movement discussed in the previous chapter. The premise that education was the door that opened to civic participation, not merely employment or skills, serves as one of the strongest rights-based arguments for inclusive and effective education.

Neoliberal Values in Education

Of course, as anyone who spent time in an American classroom can testify, Dewey's programs are implemented more in the breach than in practice. It is difficult to think of a period in the 20th century when education has not been in crisis. Whether it is poverty in isolated rural areas or dangerous urban jungles, successive waves of immigrants who surely this time will never adapt to American culture, constant calls for more accountability and better education development, or the twin demons of waste and underfunding, education is a perennial target for reform. Reform can be bent to numerous purposes. Deweyian reform envisioned a joint project of person building and community

building, with the self-governing flourishing adult as the elemental unit of democracy. Scientifically trained professionals were necessary to help those adults craft themselves, and the benefits of such professional aid were to be distributed as widely as possible.

The pattern of reform that came to dominate was neoliberal reform, focused on efficiency, the needs of the workforce, and above all capitalization of education—the modeling of education as an investment with future individual and collective returns. The accusation of “neoliberalism” is a chimera, potentially doing whatever derogatory work an author needs doing, from criticizing the trade policies of the International Monetary Fund to the dismantling of labor regulations in Wisconsin. Recognizing the polyvalent nature of the term, and trying to avoid a simply derogatory use, I see it as a mode of assessment and reasoning that borrows the vocabulary of liberal democracy, but makes a key and subtle redefinition away from the intangible work of building political communities, and towards the values of transparency and transferability in the name of capital enhancement.

Wendy Brown, in one of the more clear books of critique on the topic, casts the growth of neoliberalism as the replacement of *Homo politicus* with *Homo oeconomicus*. *Homo politicus* is the self-governing man imagined by Aristotle; a member of a community and participant in civic action (Agamben, 1998b). Contemporary *Homo oeconomicus* goes beyond the perfectly rational merchant of microeconomics to an entrepreneurial reshaping of human beings as “financialized human capital: its project is to self-invest in ways that enhance its value or to attract investors through constant attention to its actual or figurative credit rating and to do this across every sphere of its

existence.” (Brown, 2015, p. 31) The rationality of neoliberalism takes the possibilities of the human conditions and casts it through the lens of profitability.

The regime of neoliberal rationality is pervasive, so saturating that seeing it at all requires a kind of intellectual slap in the face. Discussing Barack Obama’s 2011 State of the Union Address, and the President’s commitment to job growth as the guiding star of his administration, Brown writes:

Attracting investors and developing an adequately remunerated skilled workforce--these are the goals of the world's oldest democracy led by a justice-minded president in the twenty-first century... Striking in its own right, this formulation means that democratic state commitments to equality, liberty, inclusion, and constitutionalism are now subordinate to the project of economic growth, capital positioning, and capital enhancement. These political commitments can no longer stand on their own legs, and the speech implies, would be jettisoned if found to abate, rather than abet, economic growth. (Brown, 2015, p.25)

Competition is the basis of the neoliberal ethos. Rather than continued task of individual self-fulfillment and collective governance, neoliberalism takes the Darwinian principle “of survival of the fittest” as its guiding ethos. That which demonstrates survival value continues to exist. Society, such as it is, is the substrate on which evolution occurs. Managing competitiveness, and particularly the rate of competition, is the throttle of neoliberal policy-making. While the neoliberal ethos suggests that the highest rate of competition is the best, in order to create the most economic disruption, and the strongest surviving firms. However, existing companies and individuals in positions of

strength will also use their power as a defense, slowing down rates of competition in areas that threaten them. Premising all human economic activity, the only type of activity that matters under neoliberalism, as based on skills which are learned at in formal educational institutions, some key features of neoliberal education become apparent.

The education system is the first grid where the competitive potential of human capital can be measured. It's funding is to be economized and offset on students through loans, and the promise that a degree will lead to better career prospects. The proliferation of credentials and new degree types becomes a way to pre-differentiate a labor market, while funding the educational system itself by extracting surplus value from the human capital passing through it. Economizing measures and competition within the education system create a ruthless pressure to eliminate reflective and truly difficult education experiences, in favor of those appropriately calibrated to the projected career trajectories of the individual student. If a discipline or subject is not immediately applicable to earning a better wage, then Darwinian pressures will sacrifice that subject for something that is more immediately marketable; say Communications instead of English, or Innovation instead of Science and Technology Studies (Brown, 2015, p. 175-200).

In education, the analogies between the liberal modes of Dewey and the neoliberal modes described by Brown are close enough that the shift can be accomplished almost without noticing. Flourishing becomes long-term viability; appreciation for labor and leisure becomes work-life balance; hands on learning, applied skill training; self-knowledge is replaced by strategic planning. Whereas individual assessment in a liberal paradigm is one stage in lifelong education, in a neoliberal framework it becomes a sieve to categorize ever more finely the precise skills and abilities of an individual human

capital for potential inclusion in a portfolio of employees. Scientific validation of techniques can be used to trim inefficiencies and standardizes the measures of skill across a global economy.

The goals of a neoliberal educational system ensure that students properly internalize competitive values. They must understand that they are in charge of their own destinies, and that they should balance their energies and efforts towards strategic goals. It is to assign as clearly as possible a value to the educational experience, so that graduates can be incorporated into portfolios of human capitals, or more mundanely, be hired in a good job. And because each educational institution is in competition for customer-students, they must demonstrate return on investment while minimizing their own capital costs. There are some advantages to neoliberal education: it is more flexible, more customizable to individual needs and abilities, less tradition-bound; it is merely inimical to building self-governing, democratic political communities.

From Liberalism to Neoliberalism

There are more similarities than differences between liberal and neoliberal educational practices. Credit is earned by work done, and the same standards of evaluation apply to everybody. If it were clear that some students were earning 'A's simply because of who they were, rather than because of what they had done in the class, then the instructors would be biased, and the credit not worth much. The converse, lower grades given on the basis of racial or gender prejudice, may even be legally actionable. Second, there is the assumption that the work is worthwhile; that the assigned readings and tasks build to a worthwhile understanding of the world, or some specialized area of expertise, or of the student themselves. If the work is not worthwhile, than the class is a

rip-off for the student, or degenerates into rote punishment for failure to jump through arbitrary hoops, a process which may be fair but is ultimately empty. Competition arises from the combination of fairness and merit, competition is the means by which excellence is achieved, even in the absence of formally understood measures of accomplishment. By pitting a group against each other in the same task, on an level playing field, it's possible to determine which of them are most meritorious. Competition can also, in an area of limited resources, be useful to separate out those who will go on to the next stage. The difference is in ends, not means. Liberal education aims to produce citizens to join political communities. Neoliberal education produces human capitals that are acquired by portfolios.

For liberalism and its *Homo politicus*, fairness and access means that no one is denied rights, particularly the fundamental right of participation (Dworkin, 1978). Education becomes a means to ensure progression from the minimal political rights of the child to the complete political rights of the adult citizen. Under theories of justice, progression to full political citizenship should be as accessible as possible; otherwise the democratic potential of the society is undermined. Competition is a means of inducing striving towards self-flourishing, with the external recognition of merit a means of encouraging internal love of excellent and lifelong education. Though all these values are held in tension, it is access and fairness which dominate in liberal educational systems. Accommodating ADHD is just one small way that all people are allowed to obtain the status of fully educated citizens, by helping their teachers adjust scientifically to best guide their students.

The full details of the shift from liberal to neoliberal domains in education are

outside of the scope of this chapter. Some reasonable indicators of the move are the accountability and charter school movement at the state level, designed to increase transparency and competition between K-12 schools so that parents have the freedom, if they can pay the costs in time and money, to send their children to schools sharpened by competition. In higher education, the rise of for-profit colleges and the casualization of the professoriat, the replacement of tenure-track faculty with poorly paid adjuncts who have neither the spare time nor moral authority to act as models for their students, is one immediate sign of the change (Bosquet, 2008). Liberalism is a fragile thing, a utopian dream that is aspired too but rarely reached. Neoliberalism is much more comfortable climbing the steps of Maslow's pyramid, using "shocks" to remind its captives that the basic infrastructure that sustains their secure existence can always be destroyed in service of someone else's profit, while leaving the glittering heights of status visible to those with the ambition to strive for them (Klein, 2008).

Most people today spend more time thinking in the style of neoliberalism than liberalism. As the next chapter will discuss in depth, students do not regard taking stimulant medication to study as morally wrong, since studying is proper behavior, and things that help a student study are acceptable. The divide between medicine and drugs, a professional divide characterized by medical authorization rather than actual molecular differences, is clear in students' statements. If the use of stimulant medication has been authorized by a doctor it is not wrong, while taking the very same substance for its pleasurable psychoactive effects would be (DeSantis & Hane, 2010).

Those in a position of responsibility, who might sound an alert about moral crisis, the Dean of Students-type campus administrator, have much more pressing concerns.

The moral development of students in the university is an artifact left over from the liberal era of education, and the idea of *in loco parentis*. Modern administrators have a circumscribed role, and more pressing concerns about issues that actually directly injure students. In doing this research, I have informally asked university administrators their concerns or experiences with this issue. The only one who had a concern was an administrator with two psychiatrists reporting to him, who explained that many students had requested prescriptions for Ritalin and Adderall, and they believed that this was contributed to abuse, and would no longer fill them. Student complaints about this policy escalated to the level of the college president, where it was decided that the psychiatrists were in the right, professionally and legally. As my informant said, “This was not a treatment program. It was a need to compete. They needed these drugs to compete within a culture of competition” (Personal Correspondence, 2015). However, there were no restrictions put in place on students who see a psychiatrist off-campus or who went through the entire DRC process there.

When I followed up with a question about what he thought was a problem on campus, he placed binge drinking and novel hallucinogens as the highest priority. Alcohol is implicated in student deaths, either by poisoning or misadventure, trips to the hospital, sexual assault, and a host of real and immediate harms. Hallucinogen use can lead to multiple injuries in a single night, as the dramatic example at Wesleyan College in Connecticut in February of 2012 when twelve people were hospitalized and five were arrested (Greenhouse, 2015). Compared to these public excesses and harms, a drug taken in private, which has been cleared through medical channels at some point, and which alleviates concerns that students are not competing hard enough to be successful, is at the

very bottom of the list of administrative priorities. In short, there is no moral panic about the diversion of substances because the various potential harms are minimized by both liberal and neoliberal conceptions of the modern university. As long as the initial prescription is medically approved, liberal educators should have no problem with it. Administrators see their job as maximizing student satisfaction in competition with other schools, while using their limited powers to protect the bodies and minds of students. And students see little wrong with using stimulants to study, because they have been naturalized to a competitive field of academic achievement based on effort and innate ability.

Conclusion: Stabilizing ADHD

Amphetamine abuse has long been a topic of moral concern, a symptom of deep unease with the pace and alienation of American society since the 1950s. The side effects of psychosis and cardiac arrest in individuals, or the hollowing out of entire communities under the pressures of addiction and crime, are seen as the physical signs of a deeper malaise (Rasmussen, 2009). There is a world where the recent data points that 2.9% of Americans, 9.5 million people, are taking ADHD medication (Austerman & Muzina, 2014), 10% of school age children can be diagnosed with ADHD (Getahun et al, 2013), and that 34% of college students have taken stimulant medication at some point in their higher educational career (DeSantis, Webb, & Noar, 2008), could in other contexts, be used as a rallying cry for widespread policy changes. This is not that world.

Though there are many critics of ADHD, and individual cases of resistance to drug treatment which add up to a third of untreated people who may have ADHD, the use of stimulant drugs in education has not prompted the kind of moral panic described

above. One hypothesis, a variant of Latour's (1987) "trials of strength" framework, might argue that the scientific and medical authority of the DSM and the whole edifice of modern psychiatry, when allied with the omnipresent legal and disciplinary resources of educational system, is simply too strong to be overturned by outsiders, no matter the truth of their arguments or strengths of their concerns. A better explanation is that there is no moral panic about stimulant medication because ADHD resolves moral panics about the purpose and effectiveness of education. The values that are actually important in the educational system are being upheld, rather than subverted.

Though ADHD represents a fracture in the modern education system between two different sets of values, its ability to (so far) successfully translate concerns between a classically liberal educational system founded on rights and access, and a neoliberal educational system concerned with the maximizing human capabilities and profitability, has prevented that fracture from growing into a crisis. Through dual meanings in liberal and neoliberal regimes, ADHD creates a point of stability in a transforming economy and educational system, and helps assuage the concerns of relevant stakeholders like students, parents, teachers, doctors, and administrators. The two moral concerns cancel out at the intersections, as worries about the overuse of stimulant medication and troubles of those least suited to focused, competitive, high-stakes educations are resolved by a system that provides a right to care.

ADHD is the paradigmatic neoliberal disease. It is no accident that current neurological theories of ADHD postulate a mechanism that involves weaknesses in "executive function", neural circuits between the hippocampus and the prefrontal cortex that regulate goal-seeking behavior, including plans and sustained effort on tasks

(Barkley, 1997). The neoliberal model of human capital extends down into the idea of the well-balanced life as a portfolio balanced between profitable job skills and sustaining family relationships and hobbies. A disease which implies a failure of internal leadership, which can be corrected with drugs in the same way that new management can restructure a failing company into a profitable one, is the perfect way to explain the difficulties of uneven students at the edges of a neoliberal educational system.

4. STIMULANT USE ON CAMPUS

This chapter examines the current usage of stimulant medication to enhance studying at a large American public university. The previous chapters explored the psychiatric, policy, and cultural history that led to an influx of stimulant medication on campus. This chapter continues that history into the present by determining exactly the size of that influx, how students are using stimulant medication, and what it means for their conceptions of fairness and merit. This research attempts to go beyond prior surveys, which studied the prevalence of usage and students' knowledge, and ad hoc narrative accounts in the media, to probe why students might be using these substances, the degree to which students believe that they are efficacious, and what arguments about the unacceptability of their use might have currency with the student body. By conducting a survey of 203 students, with questions guided by criticism of the use of stimulant medication, I aim to combine simple facts about the prevalence of use with an interrogation of moral reasoning. The major question to be tested was if students using ADHD medication without a prescription were different from the student body as a whole: more likely to display more acceptance of justifications for various forms of academic misconduct, getting better or worse grades, or see themselves in a more competitive academic environment. Was there any indication that students using stimulant medication saw this as part of a deliberate project to enhance their own academic abilities?

Prior work on ADHD in higher education comes from a perspective most interested in the prevalence of stimulant use or administration of the student body. While

there is some awareness of medicalization as an explanatory factor in the rise of ADHD, the prior literature takes a relative uncritical stance towards the policy, medical, or social dimensions of this phenomenon (Bavarian et al, 2015). DeSantis et al (2008), in a large survey of stimulant use at a southern US college in 2006, found that 34% of their respondents had used stimulant medication without a prescription, that the initial use of the medications was associated with a period of academic stress, that medication was readily available, and that students were poorly educated about the health risks and consequences of use. Analysis of the cross-tabs revealed a profile of a typical user, “The resulting data suggest that illicit use of ADHD prescription medications was significantly more common in men, white students, upperclassmen, and Greek members (versus non-Greeks).” DeSantis conducted interviews with a subset of the sample population revealed a pattern of justification based around utility and medical approval for stimulant medication. Students drew a line between the illicit use of substances like cocaine to party and feel good, and the acceptable use of medication to study. The social context of drugs and medicine is paramount: drugs are sold by criminals, and medicine is prescribed by doctors. Stimulant medication is stamped with acceptability because it was prescribed to someone at some point, and is broadly used by the medical community. Students saw themselves using stimulant medication strategically, to compensate for periods of particularly high academic stress, rather than as part of a regular habit or addiction. In combination, these factors led students to see the use stimulant medication without a prescription as not particularly illicit, regardless of the actual legal status of many of these compounds as DEA Schedule II substances (DeSantis & Hane, 2010).

A survey conducted at a small liberal arts school in the Northeast saw correlations between use of non-prescription stimulant medication, perceptions that others using non-prescription stimulant medication were common, and that students who believed that using stimulant medication in this way was acceptable were more likely to do so, although it is unclear if beliefs influence action, or via cognitive dissonance theory, violating the school's honor code by using stimulant medication caused these changes in beliefs (Reisinger, Rutledge, & Conklin, 2016). A systematic review of 62 peer-reviewed articles published between 2000 and 2013 (Bavarian et al, 2015) revealed few strong national patterns in the level of non-prescription stimulant medication use across time or regions. However, consistent predictors for increased use of stimulant medication were a student's prior use of illegal drugs and placement at more competitive colleges, either by selective admission policies or ranking students.

A particular gap in the literature that I attempted to address was student perceptions of the prevalence of ADHD and non-prescription stimulant medication use on campus. While prior work has examined the prevalence and ethical reasoning of students, there has been relatively little done on students' perceptions of the use of stimulant medication. Do they see it as common or rare? Are those perceptions higher than the actual rate, indicating hype or other kinds of cognitive biases, or lower than the actual rate, indicating that students hide these activities from their peers? Humans are social animals, and while "everybody is doing it" is not a coherent argument in favor of any activity, it is a common enough excuse.

Hand-wringing articles and opinion pieces decrying the widespread use of ADHD medication to produce good students are a regular occurrence in major newspapers, the

alternative press, and college newspapers. Particularly around 2013, with the imminent release of the DSM-5 with updated criteria for mental illnesses, a barrage of confessional pieces appeared describing the use of stimulant medication as symptom of an uncaring and competitive society, where individual desires of worried students and parents combined with the greed of the pharmaceutical industry to produce a toxic atmosphere of constant stimulation. While not a systematic review, I am confident in saying that a contrarian attitude towards the reality of ADHD and the use of stimulant medication is a reliable way of generating clicks, that the idea that something is wrong with the youth today, and that ADHD is both a cause and a symptom, is common wisdom in the contemporary American intelligentsia.

Elias Tezapsidis (2013), a New York based writer, described his college experience pursuing an accounting degree as one where unpleasant tasks became easier under a haze of drugs and where over-prescription generates skepticism about the whole enterprise.

The usage of neuro-enhancing drugs is a part of the college microcosm, where maximum productivity in minimum time is highly valued. The essential advantage — or possibly the biggest problem — with amphetamines, such as Adderall and Ritalin, is that they make the very process of learning pleasant.

I have heard users wonder if they have Attention Deficit Hyperactivity Disorder (ADHD) after using the drugs. They start wondering if they too “suffer” from the disorder but fallaciously never got diagnosed with it. I never question that, because I don’t believe ADHD exists. If the ones

diagnosed with ADHD have the capacity to sell their prescribed drugs to the extent they do — as the ubiquity of Adderall on college campuses shows — they probably are overprescribed. God knows, they might not even really “need” it at all.”

A series in the Middlebury College newspaper traced conflicts between students, who saw stimulant medication as just another resource for getting through their classes, with administrators who argued that using this tool devalued the point of a liberal arts education. “A major concern is the culture where students feel they need to take a drug like Adderall inappropriately,” [Middlebury Dean of the College Shirley] Collado said. “It signals an inability as a person to press pause, slow down and make mistakes. I wonder what the long-term cost will be when I think about a Middlebury student if you fast-forward 25 years, what the impact of that thinking and rationalization is” (Finck, 2014). Of course, even those nominally responsible for the well-being of the student body have other, more pressing concerns: admitting the best possible class for the next year, balancing academic rigor with student satisfaction, and helping individual students at the margins of failure succeed.

In extremis, ADHD may even serve as a symbol for papering over very real and potentially fatal dissatisfaction with life. Ted Gup (2013), a Harvard-base ethicist whose son was diagnosed with ADHD as a child and who overdosed on alcohol and opiates years later as a college student, wrote with a father’s grief.

“No one made him take the heroin and alcohol, and yet I cannot help but hold myself and others to account. I had unknowingly colluded with a

system that devalues talking therapy and rushes to medicate, inadvertently sending a message that self-medication, too, is perfectly acceptable.

My son was no angel (though he was to us) and he was known to trade in Adderall, to create a submarket in the drug among his classmates who were themselves all too eager to get their hands on it. What he did cannot be excused, but it should be understood. What he did was to create a market that perfectly mirrored the society in which he grew up, a culture where Big Pharma itself prospers from the off-label uses of drugs, often not tested in children and not approved for the many uses to which they are put.

And so a generation of students, raised in an environment that encourages medication, are emulating the professionals by using drugs in the classroom as performance enhancers.”

The line between medicine and drug becomes blurred, in a children’s game that mirrors the wider world of pharmaceutical marketing, but without any brakes. Questioning your own modern ennui, hyperbole, and very real losses are easy starting points for an opinion piece, but as such represent an extreme and non-representative group of people who believe first and foremost that their experiences are exceptional. Unlike the scholarly literature, these writers are willing to assign blame, but in their search for causality, they are too eager to scapegoat. These extended essays, explorations of a life and opinion, likely do not accurately reflect the thoughts of college students, more concerned with the day to day pressures of grades, social life, and bill, than questions of ethics and authenticity. What then, does the average person think?

Methods and Sample

The survey was conducted in three rounds, at the end of the semester in April 2015, November 2015, and April 2016, respectively. Respondents were recruited by electronic announcement and short talks to several classes across programs, and in fliers posted in university libraries. Response rates varied: responses for classes personally connected to the researcher were over 50%, dropping to around 10% for a simple electronic announcement. It is impossible to estimate the response rate for surveys from fliers, but based on time of completion one third of the responses may have come from the flied locations. 249 respondents started the survey, of which 203 completed the survey.⁴ Students who completed the survey could enter their email for either one of four \$25 Amazon gift certificates in the first two rounds, or a single \$100 gift certificate in the final round. The survey took the form of a 29 question web survey hosted on SurveyMonkey, with questions starting with demographics, GPA and major, use of stimulant medication, perceptions of the use of stimulant medication, ranking academic misconduct, agreement with reasons for committing academic misconduct, and finishing with a series of questions designed to probe questions about competitiveness, merit, and work ethic.

⁴ As a caveat, these results must be regarded as exploratory, rather than conclusive. The sample size of 203 completed surveys is simply too small for many statistical tests to achieve acceptable p-values. Sample sizes of at least 1000 would be necessary. Given that the best response rate came from large undergraduate classes where the experimenter was known to the students and completing the survey seen as part of a personal relationship, arranging those situations should be priority for future surveys. This was a convenience sample, rather than a stratified random sample.

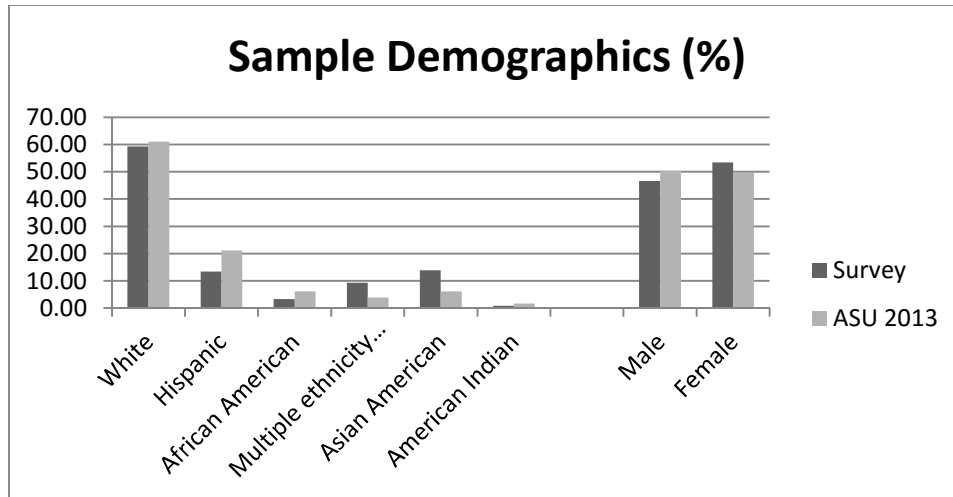


Figure 1: Sample Demographics

This sample roughly mirrors the ASU student population as of 2013 (Office of Institutional Analysis, 2013), the most recent year for which official data is available. This survey relatively oversamples Asian-Americans and people reporting multiple ethnicities/other, while undersampling hispanics and African-Americans. Women completed the survey at slightly higher numbers than men. For class year, juniors were over-represented in the sample and freshmen were under-represented, a bias due to most heavily promoting the study in 300-level classes which can only be taken by students with at least three semesters of tertiary education. Students were asked their major, which was coded by the researcher into one of 10 categories. Majors ranged across a variety of disciplines, with the life sciences (biology, microbiology, biochemistry), natural sciences (physics, chemistry), and social sciences (psychology, anthropology, sustainability, urban planning, area studies) being best represented.

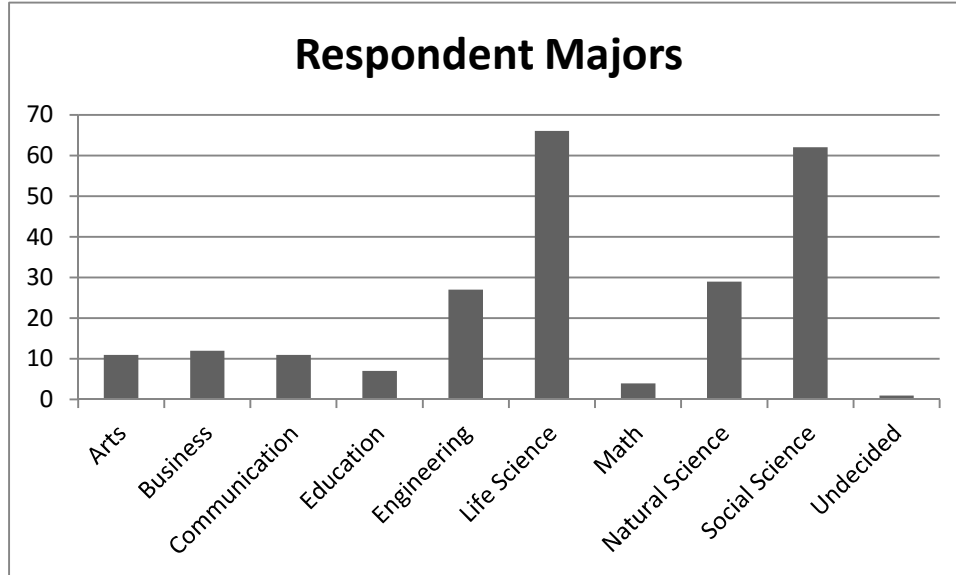


Figure 2: Respondent Majors

Prevalence of Use of Stimulant Medication

This survey found that the population of people using prescribed stimulant medication, or using stimulant medication without a prescription, was similar to national averages. 7.3% of respondents reported having a prescription for stimulant medication. This compares to the current prevalence of ADHD in the population. This study found parity in the percentage of prescriptions for stimulant medication between men and women, against national trends of higher rates of diagnosis for boys. It is unclear why this happened. Though the gender gap in prescriptions has narrowed from 1991, when boys were prescribed Ritalin or Adderall at a rate 3.4 times higher than girls, to 2008, when that ratio was only 2.3, the surveyed population would have gotten their initial diagnosis in the years around 2006 (Sclar et al, 2012). For unknown reasons, more women and fewer men in the sample reported a prescription of ADHD medication than

expected; the changes in gender ratio balanced with the national rates of prescription for ADHD medication.

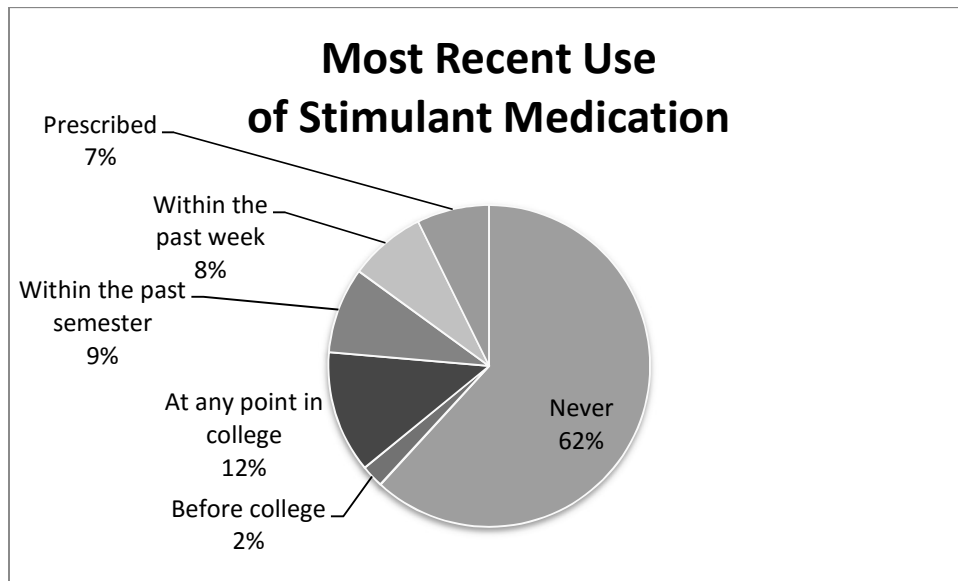


Figure 3: Most Recent Use of Stimulant Medication

Removing the 16 students prescribed ADHD medication from the dataset, we found that 33% of students reported the non-prescription use of stimulant medication. 3% before college, 13% at any point in college, 9% within the past semester, and 8% within the past week. Since the surveys were conducted towards the end of the semester, the “past week” group may include both regular users and students facing exceptional stress during finals. The overall rate of usage is in line with the rates suggested by the prior literature, which has wide variability between 5% and 37%, with the most reliable and recent research suggesting that 20% of students have tried stimulant medication at some point in the past (McCabe et al, 2014). Adding in the students with a prescription for stimulant medication, 62% of the sample report never using these substances.

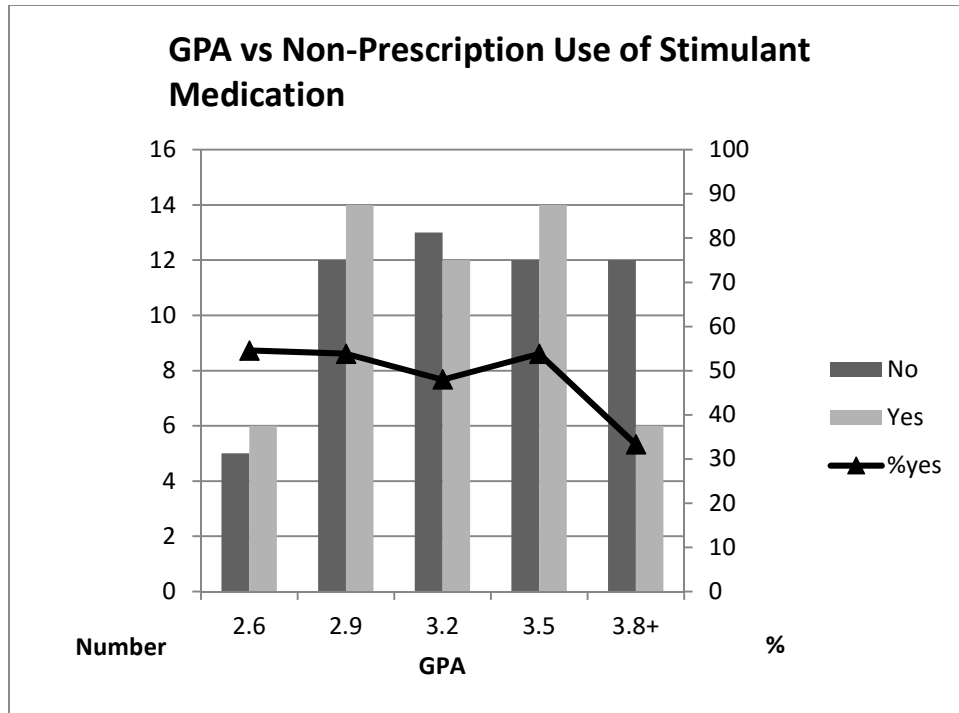


Figure 4: GPA vs Non-Prescription Use of Stimulant Medication

Prior research suggests that more poorly performing students are more likely to use stimulant medication. The bars show the number of students in a GPA range (2.6-2.9, 2.91-3.2, etc) who reported the non-prescription use of stimulant medication on the left scale, while line and right scale shows the percentage of respondents in each category reporting “yes” to the use of stimulant medication at any point. 4 out of 5 respondents with GPAs below 2.6 also reported using stimulant medication, but the low sample size for GPAs under 2.6 makes those results ungeneralizable. For GPAs greater than 2.6, a chi-squared test does not reject the null hypothesis that GPA and the likelihood of using stimulant medication are independent. A Kolmogorov-Smirnov test confirms similar GPA distributions for students who do and do not use non-prescription stimulant medication. The dip for exceptional students with GPAs above 3.8 may be a statistical artifact. Further research is needed: assuming proportionality across answers, a sample

five times larger than the one used in this survey might indicate that there may be a link between GPA and the non-prescription use of stimulant medication.

Perceptions of Prevalence and Access

The perception that stimulants are widely available on campus was confirmed by this survey. Respondents were asked how many people they knew who were taking stimulant medication, with 73% of respondents answering in the affirmative. 20% of respondents indicated that they knew 7 or more people using stimulant medication, a result indicating that the use of stimulant medication was extremely common within their social circle.

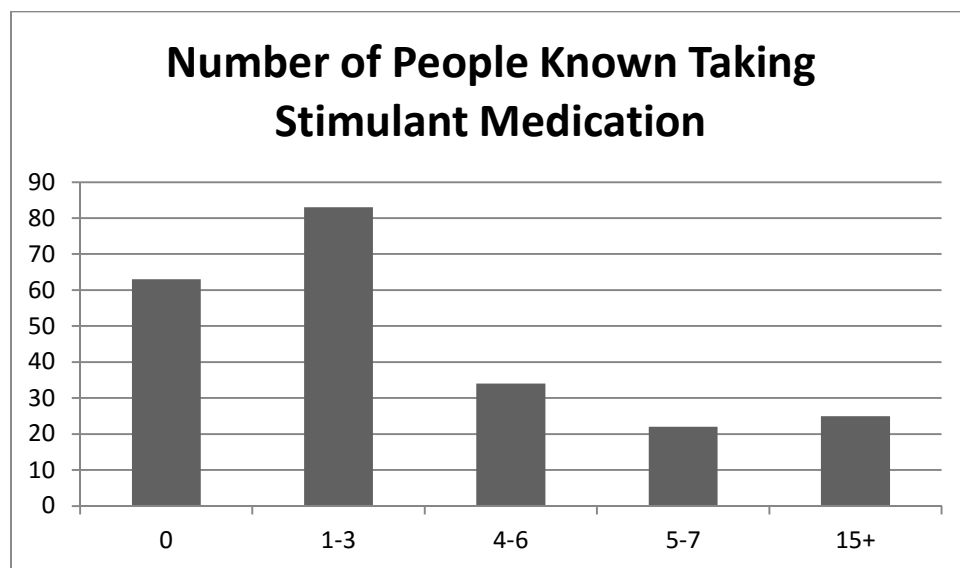


Figure 5: Number of People Known Taking Stimulant Medication

Sociality is a major factor in access to stimulant medication. When asked in general terms, (without naming names, to prevent breaching confidentiality for anybody associated with the study), how they would go about obtaining stimulant medication, the word “friend” or “friends” appeared in 80 out of 206 results. Respondents indicated

several common modes by which they might obtain stimulant medication. 42 respondents said they would seek access through medical channels, obtaining a diagnosis for ADHD and a prescription. Faking symptoms or just asking a doctor was seen as non-problematic; the medical system would work automatically to supply them with drugs at the expense of at least one appointment, “go to your doctor get a referral for a psychiatrist that accepts your insurance, make an appointment, tell them you cant focus. [sic]”.

For informal access, respondents described four different methods. 68 respondents indicated that they knew a single person, usually a friend, but occasionally a relative, roommate, or friend of a friend, who would be able to supply them with pills. 68 other respondents related a sense that stimulant medications were ambient, and that they would just ask around in their classes, social circle, or dorms. Some students suggested that the more academically intense environments, such as Barrett Honors College, or science classes, would be the most likely option, while others suggested approaching people who “liked to party.” A smaller group of people indicated that stimulant medication was available through illicit commercial links. 9 respondents said that recreational drug dealers also carried prescription stimulants, and that they would go to someone who was “connected” in this way. Six respondents said that they would go to the internet, either social networking sites, Craigslist, or the bitcoin-based black market Silk Road, before it was closed by the FBI. Only 13 respondents (6.3% of the answers) reported having no idea how they maintain stimulant medication, and none of the response indicated any expectation that obtaining stimulant medication would present the slightest challenge.

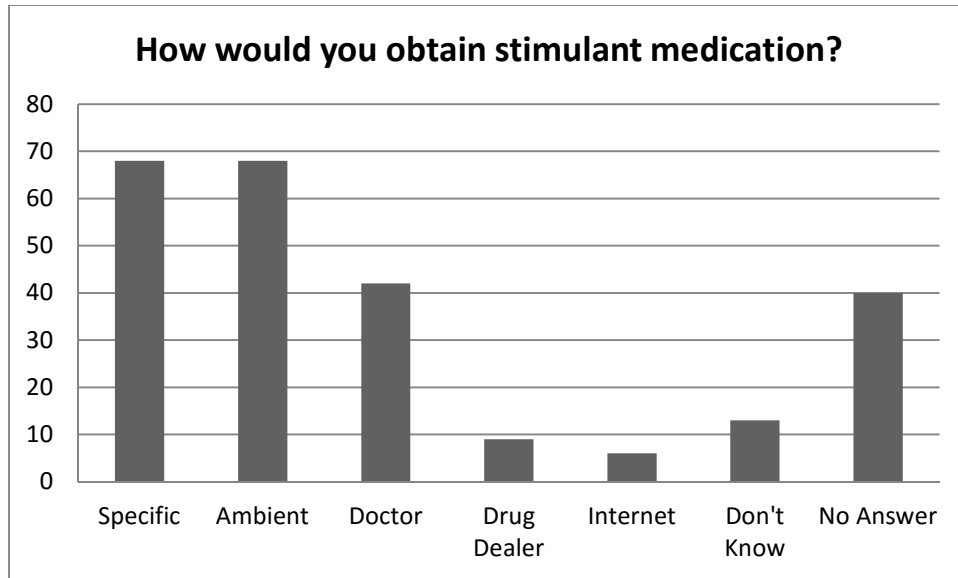


Figure 6: How would you obtain stimulant medication?

The survey asked respondents what percentage of students they believed had a prescription for ADHD medication, and what percentage were taking ADHD medication. Answers varied widely, from just 1% to 80% of the student body using stimulant medication. On average, respondents believed that 16.5% of the student body had a prescription, and that 32% of the student body was taking stimulant medication. The perception is that ADHD is more common than it actually is, either by the number from this survey or official statistics, while the perception that 32% of the student body is taking stimulant medication is roughly in line with the 24% of respondents in this survey who are either prescribed stimulants, have taken them in the past week, or within the past semester.

Effects of Stimulant Medication

A distinguishing feature of the non-prescription use of stimulants, compared to recreational use of substances, is that it is nominally done for external ends, i.e. improved

grades, rather than an intrinsic chemical pleasure. It is therefore interesting to see how respondents believe stimulant medications work; the effects and side-effects most salient to their personal experiences and cultural knowledge of the substances. In particular, the hypothesis that stimulant medication might be seen as a general cognitive enhancer, an all-purpose academic steroid, was put to the test. In this survey, respondents were asked to report their perceptions of how stimulant medication worked, and if they had ever used it, what the effects were like in their own words. 28% of respondents indicated that stimulant medication did not improve grades, while 95% of respondents indicated that stimulant medication had at least one effect. Improving concentration and wakefulness were the two more commonly reported effects, while only 5 respondents indicated that stimulant medication makes the user smarter. These five people explicitly reported that they had never used stimulant medication: lack of experience was associated with a greater sense of potential for the substances.

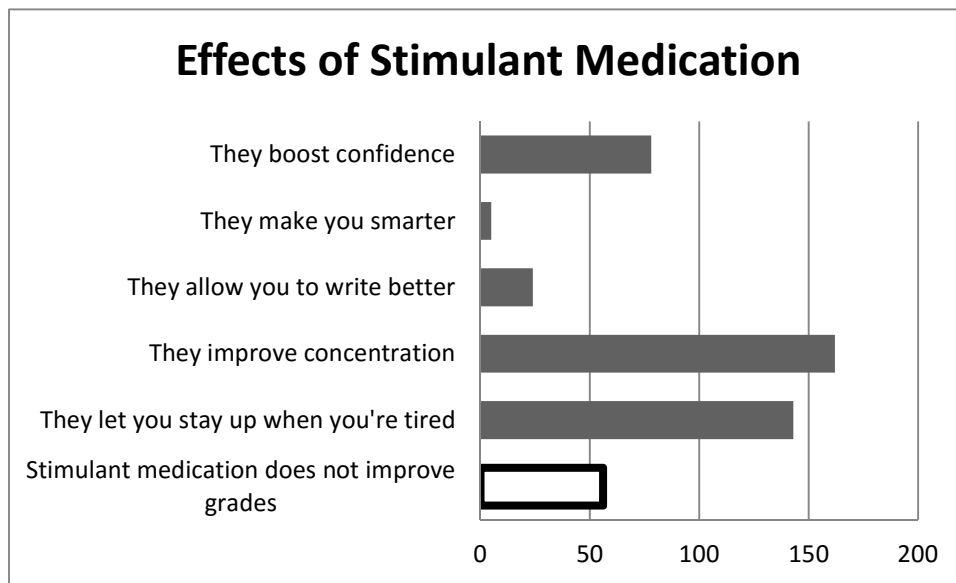


Figure 7: Effects of Stimulant Medication

90 of the 203 respondents provided a brief qualitative account of the drugs. The most common themes were energy, alertness, focus, and motivation, along with an increase in mood, but many respondents also noted negative side-effects, foremost jitteriness, irritability, and trouble sleeping. As one respondent put it, focus did not always come with the ability to stay on a desired aim. “I was very focused on various tasks, but sometimes got too focused on things I shouldn't have been working on (like deep cleaning my room/bathroom as opposed to writing a paper).” Some respondents saw it as superior to coffee, alertness “without the caffeine crash”, while others complained of feeling drained the day afterwards. Over all, respondents saw stimulant medication as an effective short-term means to increase effort on a specific task, while cognizant of longer term risks and trade-offs.

Academic Misconduct and Rationalization of Behavior

A battery of questions asked respondents to rank the seven types of academic misconduct listed in the ASU student handbook with the addition of the non-prescription use of stimulant medication to study, and then asked them to agree or disagree with several excuses. A common argument advanced against the potential use of cognitive enhancement in an academic study is that it would be like the use of steroids in athletics, which is widely regarded as unethical and strictly regulated by professional sporting organizations and the NCAA. The objective of this battery of questions was to see under what circumstances students might consider committing academic misconduct, and to indicate where the non-prescription use of stimulant medication fell in this range. The different forms of misconduct were pulled from the student handbook, with the addition of the non-prescription use of stimulant medication. By asking students to rank forms of

misconduct first the survey first used a small cognitive task to increase momentary awareness of the types of academic misconduct, and fitted the test case of non-prescription use of stimulant medication into the respondent's individual ethical landscape, rather than one chosen by the researcher.

Ranking Academic Misconduct

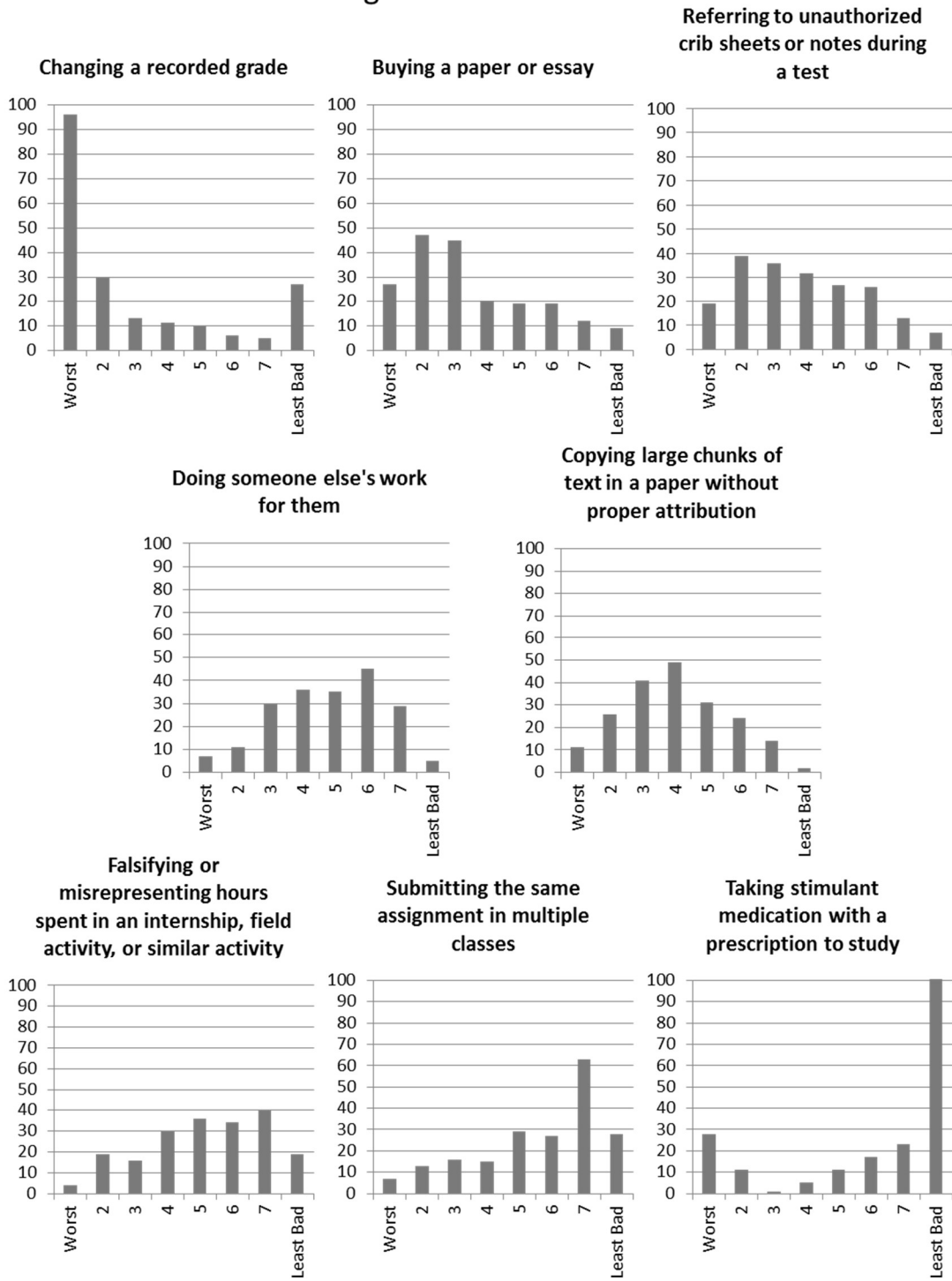


Figure 8: Ranking Academic Misconduct

The types of academic misconduct ordered in average severity from worst to least bad reveal a series of standard distributions, with two major outliers. Changing a recorded grade is considered by 96 students to be the worst form of academic misconduct, nearly the same number as all other forms of academic misconduct (99). One plausible explanation is that it is impossible to change a recorded grade without committing another crime, such as breaking into a professor's office or hacking the registrar's database. The use of stimulant medication with a prescription was at the bottom of the list, with 102 students choosing it as the least bad form of academic misconduct, compared to 78 students who picked any of the other options. From this, we can see that stimulant medication is seen as the least serious form of misconduct by a wide margin.

Setting a behavior as academic misconduct in a handbook may not be much of a barrier. Academic misconduct may itself not be much of a barrier. While students were relatively confident that the form of misconduct they ranked highest was against the rules, for items at the bottom of the list, 95 students indicated that they did not know that their choice was academic misconduct, almost half of all responses.

Respondents were asked if they agreed with any of four possible *rationalizations* for committing academic misconduct: If I don't, I'll fail the class; I don't have enough time to do the assignment; I need to do well to be successful later in life; the assignment isn't worth the time of completing it; and if the activity was never permissible, or if they did not know it was misconduct, for the three categories of the form of misconduct they ranked highest, the form of misconduct they ranked lowest, and non-prescription use of stimulant medication. For the question about stimulant medication, two additional

responses were added: I have ADHD, and the medication was prescribed to me by a doctor. The number of “Yes” answers on each rationalization was summed into a rationalization score, with 0 meaning no rationalizations, and 4 meaning that they agreed that all rationalizations served as an acceptable excuse.

Rationalizations for Misconduct

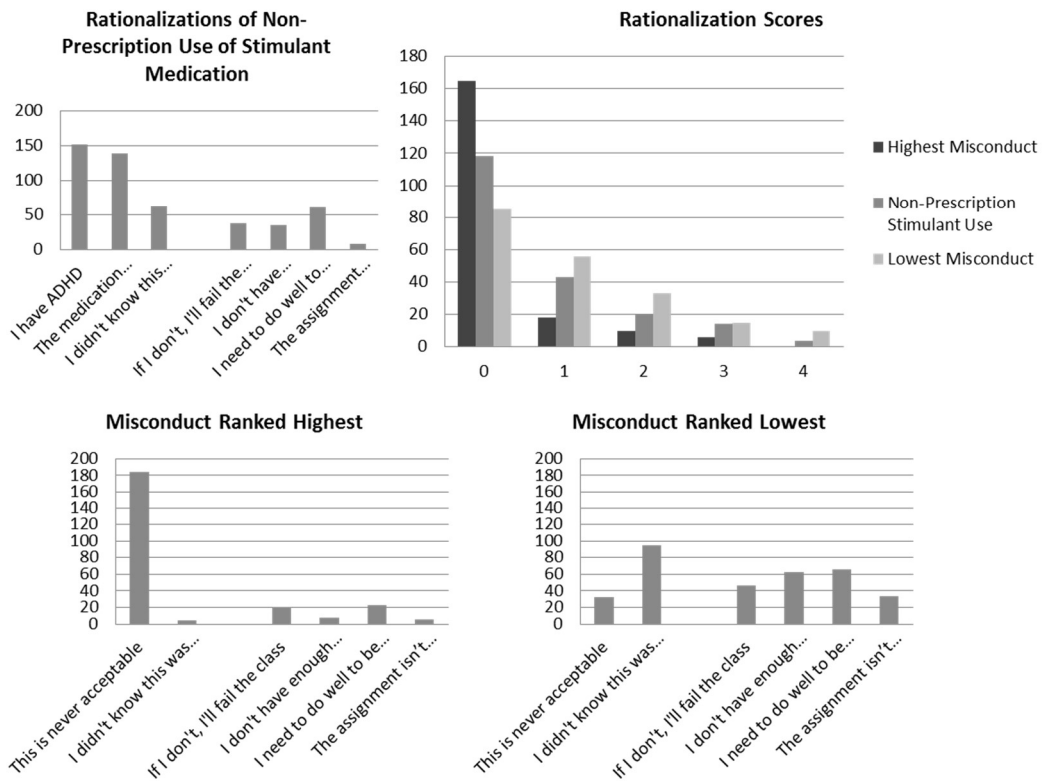


Figure 9: Rationalization for Misconduct

Students were roughly 3.5 times more likely to agree with one of the rationalizations for the least severe form of academic misconduct than the most severe, and 2.5 times as likely to rationalize the use of stimulant medication. When primed with more severe consequences of academic failure (failing a class vs. succeeding at life), respondents were more likely to make that rationalization. The notion that time pressures

and busy work assignments might be rationalizations for non-prescription use stimulant medication was not born out in this survey, with low response on both of those answers. For the non-prescription use of stimulant medication, it was interesting that some respondents answered in the affirmative for only one of the rationalizations “I have ADHD”, and “The medication was prescribed to me by a doctor.” A respondent who believed fully in the validity of the medical system and ADHD would believe that both were true, as 117 respondents did, while 33 respondents indicated that neither rationalizations were acceptable, possibly indicating a rejection of the validity of ADHD. Of the respondents who answered only one of the rationalizations, 35 supported the diagnosis of ADHD without a prescription from a doctor, and 22 agreed that a prescription was needed, even if they did not think that ADHD constituted a valid reason for taking stimulant medication.

Taking each affirmative answer to one of these rationalizations as an increase in a “rationalization score”, we can see that students were more likely to say that there is no acceptable reason for non-prescription stimulant use and the highest ranked form of academic misconduct than agreement with one of the rationalizations. The situation was reversed for lowest ranked form of misconduct, where a majority of students accepted at least one form of rationalization. While a specific conclusion from these data is out of reach, in this study students agree with rationalizations for using stimulant medication at levels between their rationalizations for committing what they individually consider to be the most and least severe forms of academic misconduct.

Competition and Fairness

The final battery of questions asked how much respondents agreed or disagreed with several statements on competitiveness and fairness, using Likert scales. Students indicated that academic success was very important to them, with 134 strongly agreeing, 39 agreeing, and only 6 students registering non-committal or negative opinions to the question. Students were in agreement with the statement that college was a predictor of future life success, but also indicated a substantial degree of agreement with statements indicating that having fun was important. On matters of competition, students were in moderate agreement that they were in competition with their peers, but were generally unwilling to bend their ethics and cheat to catch up.

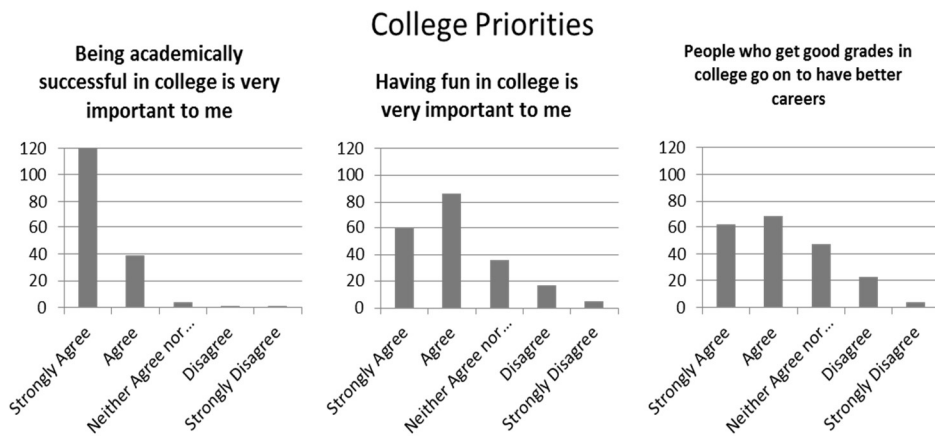


Figure 10: College Priorities

The only definition of fairness that had broad support was “Fairness means no one is taking advantage of anyone else”. The two alternatives, the “level playing field” metaphor used by the Disability Resource Center, and a kind of blind procedural fairness, were only slightly more favored than disfavored. From this, we can work backwards to

argue that many respondents are best described as utilitarians; as long as the outcomes are not exploitative, then the environment should be considered fair.

The last two definitions of fairness, “some people need a leg up” and “everybody is treated the same” are mutually contradictory. However, 92 out of 203 respondents gave the same answer for both questions, and a further 54 gave an answer with only one degree of difference (e.g. “Agree” to the first definition, and “Neither Agree nor Disagree” to the second). Only 57 respondents, 28%, demonstrated this basic degree of logical coherence in their definition of fairness.

Competition and Fairness

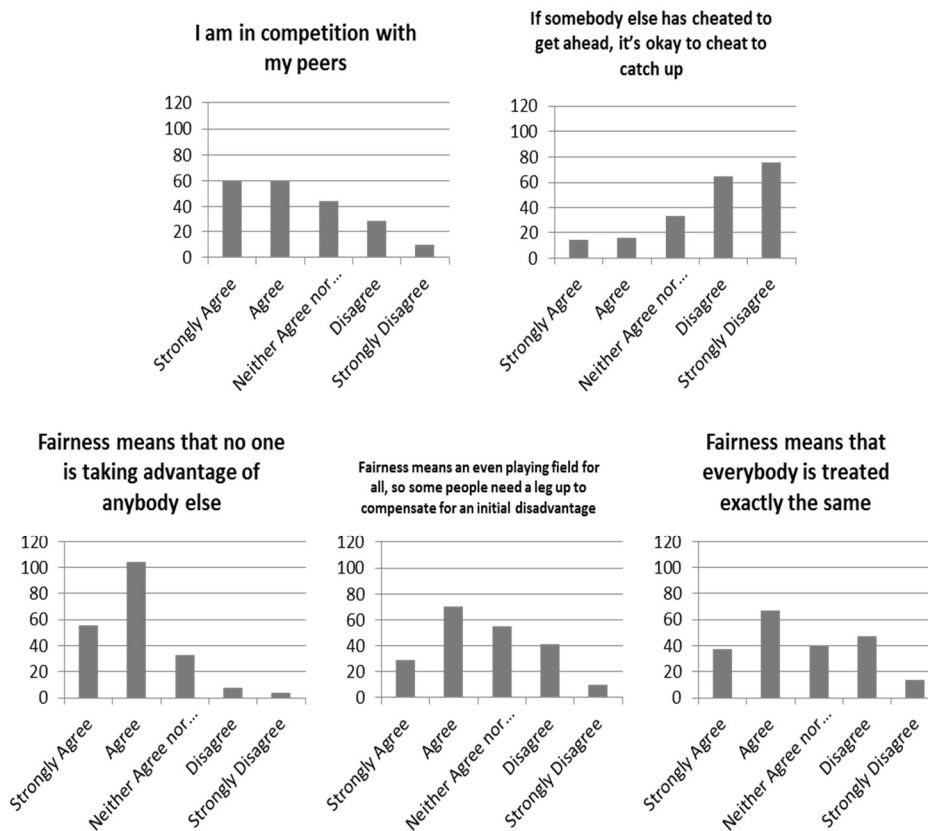


Figure 11: Competition and Fairness

The final question in this series asked how students defined a good student as a ratio of talent and hard work. This question was designed to probe various theories of success, and of grit versus some sort of innate ability to excel. The results found overwhelming support for hard work as the best definition of a great student, and a general skepticism for talent. It would be interesting to compare these results to those at a more selective institution to see if there is greater support for talent among students who have been inculcated to regard themselves as talented, but that work is beyond the scope of this project. A preliminary review of the literature suggests that at elite institutions of learning, hard work is performed as a sign of commitment to meritocracy, while actually working hard is devalued in favor of a commitment to an elitist ethos (Kahn, 2013).

Gifts, Hard Work, and Recognition

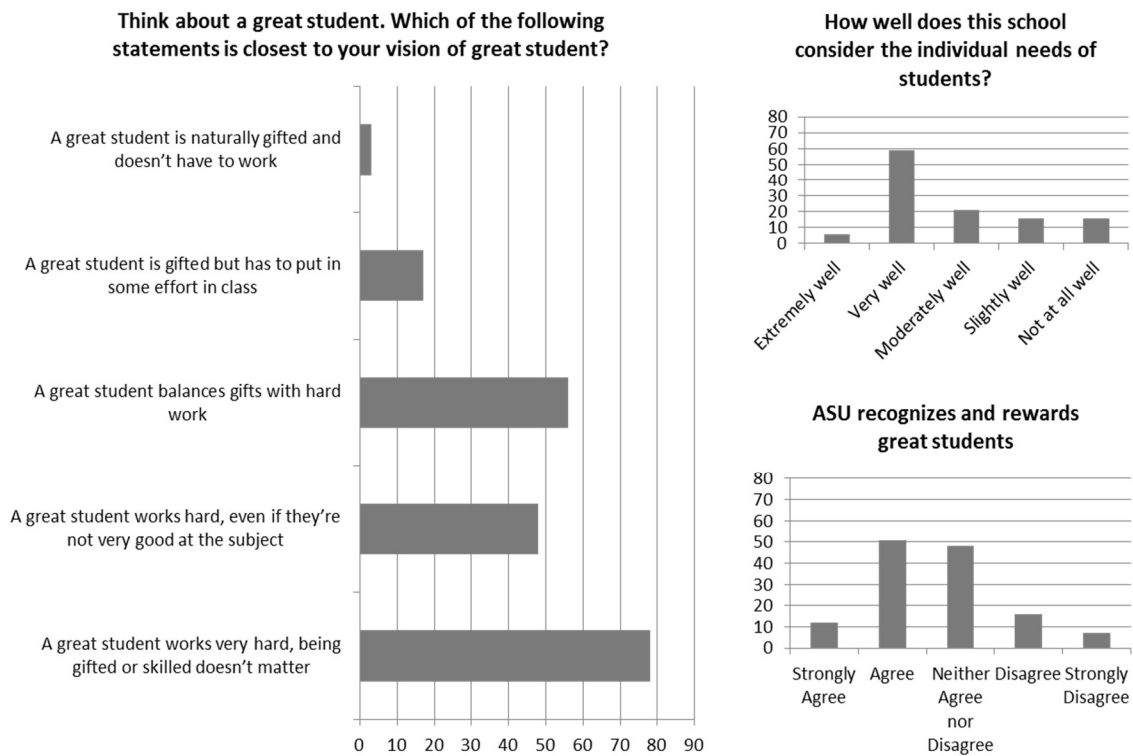


Figure 12: Gifts, Hard Work, and Recognition

As an addendum, a set of preliminary interviews on the first two rounds indicated that a question relating to the degree of satisfaction with the educational process might be interesting. This small set of interviews (N=5) produced vehement disagreement with the statement that ASU recognizes great students. Some of the interview subjects reported that great students appeared to be actively punished by professors for going beyond the material or helping other students. Since this was an unexpected result, the third round of surveys added questions about how well ASU recognizes and rewards great students. While respondents overwhelmingly felt that individual needs were considered, they were more ambivalent about “recognizing and rewarding greatness”, selecting only

slight agreement. While the strong feelings of the interviews did not carry through the third round of survey, a broad recognition of equality seems to be more in line with the ASU educational mission than recognizing the greatest students, whether they are hard-working or naturally talented.

Using the Kolmogorov-Smirnov test⁶, the two hypotheses that ADHD students would display higher levels of rationalization and higher levels of competitiveness were tested. The data suggested the opposite. As measured by these survey questions, the ethical flexibility and competitiveness of students who report non-prescription use of stimulant medication is very similar to the answers reported by who did not use stimulant medication.

Conclusion: Just Like Everyone Else

Within the limits of my samples, there were no detectable differences between respondents who reported non-prescription use of stimulant medication and those who do not: on GPA, ethics, or competition (Figures 4 & 13). In short, students who use stimulant medication are just like the student body as a whole. This survey revealed that non-prescription use of stimulant medication is very common on campus, with large majorities of respondents knowing one or more people who use stimulant medication, and expressing confidence in their ability to obtain stimulant medication (Figures 5 & 6). While 38% of respondents indicated that they had tried stimulant medication to study at some point, less than a third of non-prescribed users had so recently or regularly

⁶Kolmogorov-Smirnov is a standard statistical test for comparing distributions between two populations, in this case respondents who used stimulant medication and respondents who did not.

(Figure 3). This, in combination with the subjective reports of feeling “energetic yet wired”, suggests ad hoc usage, experimentation, and overall rejection of the non-prescription use of stimulant medication. Respondents do not regard it as wrong, they regard it as *ineffective*.

However, respondents identified hard work and the ability to grind through assignments as the key determinants of academic success (Figure 14), and deem increased concentration and wakefulness as the key effects of stimulant medication (Figure 8). Concentration and wakefulness should allow users of stimulant medication to increase their effort on assignments, and therefore their grades, but this claim is not born out either in the perceptions of my respondents, or the absence of any correlation between GPA and the use of stimulant medication.

Barriers to safe and ethical use of any substance for cognitive enhancement include dosage, negative side effects, positive effects too small to perceive, and the potential hazards of addiction. The patterns of use and response reported in this survey are most congruent with ad hoc, stress initiated use of non-prescription stimulant medication, rather than any ongoing program in human performance enhancement for career related ends. Claims that cognitive enhancement can be made ethical or accessible must first deal with the realities of proving that cognitive enhancement exists at all, and the difference between feeling better than human and actually being better than human.

For college administrators who might try and regulate non-prescription stimulant use, a strict disciplinary approach has already failed. These substances are widely available through prescribing physicians entirely outside of the college system. Social solidarity, a desire for individual success, and the grey market of \$5 transactions for pills,

creates an ambient environment of available stimulants, rather than clear points for intervention. The only point of encouragement is that repeated use seems confined to a small minority. The tone of the editorials at the start of this chapter, of the hollowness of modern life and betrayal of authentic learning at the hands of the pharmaceutical industry, are not born out by the responses of a representative sample of students, who are mostly satisfied with college on the whole.

This section of my research has been mostly one of negative results. My personal college observations—that the wide use of stimulant medication represented some kind of radical threat to college, and thence to intellectual work as a whole—can't be found in any reasonable interpretation of the data. Web surveys are not the right tools to probe questions of complex reasoning, as respondents don't seem to pay very close attention to the questions. Interviews can collect more considered data, but are time consuming to conduct in statistically valid sample sizes and interactive effects between the interview subject and researcher make it difficult to collect accurate data, as interviewees adjust their responses to mirror the interviewer (Fontana & Prokos, 2007). Finally, respondents may simply lie, or choose what they believe to be the socially preferred answer, even with the shield of anonymity. The key material thread through all of my negative results is that stimulant medications simply don't work very well, outside of their intended role of countering the behavioral symptoms of ADHD. While their positive effects on alertness and short-term recall are well-founded in the literature (Smith & Farah, 2011), and immediately detectable by users, I have not been able to find a randomized control trial comparing the effects of stimulants on real-world performance over an extended period of time. Indeed, such research would be unlikely to pass the Institutional Review

Board process. But the fact that current substances are only partially effective is not grounds to relax. As of the early 2000s, Modafinil replaced Dexedrine as the anti-sleep drug of choice in the US armed forces, and we can only assume that more sophisticated substances are in the pipeline. If a drug that ever demonstrates an immediate effect on intelligence were to hit the market, my data suggests a small but significant minority of students would try it, and administrators are ill-equipped to stop the spread of said hypothetical substance.

5. TRANSHUMAN U: DEMOCRACY AND THE ENHANCED UNIVERSITY

This project has covered a large amount of terrain: the fluidity of a diagnosis, the coproduction of new civil rights and institutional knowledge, the value system of higher education, and finally the current status of non-prescription stimulant use at a major American university. Throughout this dissertation, I have examined the many ways in which people, particularly students, are made “better” through policy and applied technology. I now turn to the futurological question of my thesis. If humans can be made “better” in the broadest possible sense of the word, should they? What guidance do the major philosophical arguments concerning the embryonic practices of human enhancement provide, given the current status of a wide range of technologies focused around surpassing human limitations? How does the past and present of treating ADHD inform any future attempt to increase human intelligence?

This section is a response to a challenge by bioethicist Henry Greely and his coauthors (2008), in a commentary in *Nature*, “Towards responsible use of cognitive-enhancing drugs by the healthy,” which starts by indicating the increased use of stimulant medication by college students to study, and argues:

In different ways, each of these professions [physicians, human resource administrators, educators] has responsibility for fostering and evaluating cognitive performance and for advising individuals who are seeking to improve their performance, and some responsibility also for protecting the interests of those in their charge.”

I disagree. This issue is too important to be left to professionals alone. If the issues surrounding human enhancement are as fundamental as both proponents and

detractors state, than only a process involving the public as active agents, not merely passive receivers of knowledge, can succeed in incorporating human enhancement into the body politic.

Two groups have been actively discussing these issues of applied technology for changing the human condition. This section will draw on the writings of transhumanists, primarily *The Transhumanist Reader* (More and Vita-More, 2013) and the print run of *H+ magazine*, as well as scholarly works by bioethicists aligned with the transhumanist movement. I follow the transhumanists because they are a future oriented ideological movement: a group of people in debate about the consequences of various technological programs and their feasibility at this point in time. Social change can be the result of slow and nearly invisible forces, but when a group of people are loudly advocating for changes, they should be attended to first.

Every action inspires reaction, and the transhumanist movement has inspired an ongoing dialogue in defense of human nature and against the radical sociotechnological changes proposed by the transhumanists. Between these extreme positions defined by a degree of deliberate logical coherence, is the muddle of practice and public opinion, where some tinkering with human biology is broadly acceptable in a framework of treatment but less acceptable when taken as a competitive enhancement or purely self-interested choice. I put these proposals in conversation with the idea of technological momentum and path dependence, the theory that technologies do not change arbitrarily, but are bound by their history and place within a sociotechnological system, and that the moments of emergence, minor choices made for reasons of convenience can become a

locked-in part of physical infrastructure and social training (Hughes, 1994. Mahoney, 2000).

My approach is sociological rather than philosophical: these are not abstract ideas in conflict, but the preferences of individuals and groups with varying levels of organization, ideology, and objectives. Concrete physical reality pushes back against human beliefs; what many transhumanists desire is not attainable with present technology, and may not be attainable with any technology. The futuristic orientation of transhumanism makes many assumptions about the course of technological development, and the feasibility of dramatic and obviously beneficial modifications to the human form, against a medical research establishment which has become used to advances made on the most subtle points of probability in large populations (Greene, 2007).

What follows describes three transhumanist technological programs to enhance human cognition, extend lifespan, and transfer personalities into computers. I will also lay out my own analysis of the philosophical underpinnings of the transhumanist movement, and respond to major critiques. I see transhumanism as a new attempt to grapple with ancient problems about humanity's place in the universe and the fears of an individual facing death. Within those metaphysical concerns, it is also a movement defined as much by its schisms as its commonalities. Transhumanism is an ongoing conversation taking place on the internet, at conferences, and around a handful of established organizations like the Alcor Foundation, Singularity University, and the Institute for Ethics and Emerging Technologies. Some transhumanists are serious and credible scholars, while others are enthusiasts, panglossian techno-optimists, and entrepreneurs most interested in selling hype for their own products and expertise.

Transhumanism has drawn a significant degree of negative attention, most explicitly by a cadre of bioethicists holding a conservative and/or religious view of the universe, exemplified by Leon Kass and Francis Fukuyama. Kass and Fukuyama defend human nature as the basis of human rights and political consistency. In their view, attempts to improve humans, or radically redefine life as the transhumanist program intends, threaten democracy and even the basic conception of ethics in pursuit of short-term and illusory gains.

Disability rights, education, the ontology of ADHD, and the bioethics of radically altering the human condition have been extensively debated individually. My contribution is to treat these as different approaches towards the question of how we define and create “better” humans. Disability rights and liberal modes of education included a common humanity as a fundamental construct; they move into uncertain territory when the definition of human normal becomes subject to change. The transhumanist literature frequently makes a utopian move in imagining the future of human enhancement that washes away deep personal and institutional commitments to continuity in procedures, epistemology, and concern (Jameson, 2005). ADHD is frequently used as an example of human cognitive enhancement, with stimulant medication serving as a limited and temporary means to surpass barriers of distraction and lack of will. By connecting all these parts of the enhancement discussion, I hope to offer some insights into the near future ethics of enhancement.

The Transhumanist Program

Transhumanism offers an idealized vision of why and how human enhancement might become commonplace and, indeed, the defining feature of a future society in much the same way that the use of fossil fuels defined the 20th century. Max More, a longtime transhumanism evangelist and philosopher defines transhumanism inclusively as “the view that it is both possible and desirable to overcome biological limitations on human cognition, emotion, and physical and sensory capabilities, and that we should use science, technology, and experimentation guided by critical and creative thinking to do so” (More, 2013). More attempts maximum inclusivity, both within and without the transhuman movement. He locates transhumanism as the natural successor to the humanist tradition and Enlightenment ideals: that the course of history is affected by human agency and that applied rationality in a framework of individual choice and shared governance offers the best chances for more frequently choosing wise courses of action. According to More, the intellectual ancestors of transhumanism can be seen in early 20th century scientific visionaries like J.B.S Haldane, J.D. Bernal, and Nikolai Federov, with a major influence from Charles Darwin. The most succinct definition of transhumanism might be “It is time for humans to guide their evolutionary destiny.”

More gestures at an ongoing political divide in transhumanism, between Ayn Rand-inspired libertarianism which sees in the development of transhuman capacities the ability to enable a utopia of rational supermen, and an alliance of self-described technoproggressives, who argue that the ability of technology to ameliorate human suffering must ethically be made available to as many people as possible, not just (wealthy, white) early adopters. Furthermore, governmental paradigms focused solely on individual liberties are inadequate to manage risk in complex systems, or collectively

allocate planetary resources. Technoprogessives seek innovations in institutional structures to match newly extended capabilities. Rather than design new men who abide by the rules of the new society by nature, a common trope in utopian plans ranging from the spiritual practices of religious communes in 19th century America, to the New Soviet Man of Communism, or the Objectivist seasteader, technoprogessives see a co-evolution between capacities for empathy and reason, and upgrades to the antique “operating system” of representative and parliamentary democracy (Pellissier, 2011).

Transhumanism is a distinctly *techno*-political movement, and it is important to document the ways in which different technological projects have led to different social organizations, and different kinds of failure modes. Max More’s inclusive definition is an attempt to bridge distinct worldviews, linked to three major theories of the key transhumanist technology. The three major classes of transhumanist technological factions are the *cryonicists*, the *uploaders*, and the *rejuvenators*, all of whom are focused on the key task of avoiding death. It is important to note that these are proposed directions for research; while they represent real differences of opinion, and in particular concentrations of financial and intellectual power, actual results that would point to any one of these approaches being possible are perennially just over the horizon. The group that succeeded first would reap the rewards common to pioneers in any number of breakthrough technologies.

Cryonics is the most established of the transhumanist research programs, with a core aim of cryogenically preserving human beings, or in some cases heads, just at the point of death, with the goal of revival at some future time when the proximate cause of death and freezing-induced cellular damage may be repaired through nanomachinery or

whole organ regeneration. Cryonics extends the commonplace cryogenic preservation of biological samples with the idea that a whole organism can be frozen, placed into biological stasis, and then returned to life. At the edge of the death, the body is rapidly cooled and then injected with a cryoprotectant solution based on DMSO (dimethyl sulfoxide) and ethylene glycol, a cell-penetrating antifreeze solution. From a philosophical standpoint, cryonics advocates argue for a redefinition of death based on information theory. Information-theoretic death is the point at which such damage has occurred that it is impossible to restore the patient to life. This stands in contrast to brain death, the absence of brain activity or response to stimuli, and traditional definitions of death that involved the ceasing of the heart. Since the cryopreservation procedures must be started as soon as possible to avoid decay, there is a possibility that cryopreservation involves injecting a toxic solution into a still alive (but invariably rapidly declining) person. As such, a major focus of cryonicist rhetoric has been analogizing their work to the ethics of organ transplantation

Cryonics broke into the mainstream with the 1964 publication of Robert Ettinger's *The Prospect of Immortality*. Bob Nelson, a Los Angeles television repairman and entrepreneur, described hearing about Ettinger's work on the radio and being entranced with the vision of ending death. Nelson founded the Cryonics Society of California and cryopreserved the first human in 1967. Nelson's ambitions exceeded his expertise and his finances, and over several years financial trouble, failures of Nelson's primitive equipment, and the undeniable deaths of all the people he had preserved, led to the dissolution of the Cryonic Society in 1974. Nelson was the target of a major lawsuit alleging he defrauded his customers. Nelson was personally absolved of wrongdoing, but

the aura of scam persists around cryonics (Nelson, Bly & Magaña, 2014).

Cryonics is an option today, with the leading group being the Scottsdale, Arizona, based Alcor Foundation, headed by Max More. For \$200,000 for the whole body, or \$80,000 for just the head, Alcor will preserve a human being. The quality of current techniques is under dispute. While Alcor insists that it provides state-of-the-art care, insider exposés and lawsuits allege staff fumbling a cryopreservation procedure because of basic errors like lacking checklists and playing catch with the frozen head of Ted Williams (Pein, 2016). Cryonics has also been implicated in marriage difficulties, where one partner will seek to be preserved, while the partner that does not believe in cryonics sees this as a waste of money and an abandonment of the relationship for a post-human future. There are now ‘cryonics widows’ support groups for women who do not wish to follow their husbands into the freezer (Howley, 2010)

Cryonics remains a durable feature of the transhumanist landscape, despite a notable lack of progress on successful reversing cryopreservation on any animal more advanced than *C. elegans*, a nematode used as a model organism in biology (Vita-More & Barranco, 2015). In my own discussions with Alcor-related cryonicists, they seemed extremely defensive about an actual hard test of their method, such as preserving and reviving a small mammal. This durability is in some ways due to the personalities involved: Max More is both the CEO of Alcor and an atypically charismatic contributor to transhumanist discourse who has attempted to create an acceptable canon for the movement in *The Transhumanist Reader*. Cryonics offers immediate evidence that it does something, even if all the necessary pieces are not yet functional. Simply by signing up for Alcor, interested individuals can be assured that they will be preserved, if not revived.

Compared to the major scientific project involved in uploading and rejuvenation, cryonics can be pursued by a moderately wealthy individual, with the hope that some future society will develop the technology to successfully revive cryo subjects.

Uploaders believe that the mind can be separated from the body and instantiated in a more durable substrate than 3 pounds of neurons. The uploader program makes a series of assumptions about philosophy of mind; that the mind--memories, personality, qualia---exist as functions encoded in the structure of the brain, and that these structures can be read out and recreated in some kind of computer hardware, duplicating the self, which can then be backed up or upgraded as necessary (Koene, 2013). As preliminary steps towards uploading, Koene argues for a much better understanding of the brain structure through techniques like automatic tape-collecting lathe ultramicrotome, where a preserved section of brain is sliced and electron microscoped in layers, which are then reconstructed to form a 3D neural map. This technique has seen success in mapping areas of about 1000 neurons in the visual cortex of a mouse, with the ability to distinguish between inhibitory and excitatory neurons (Bock et al, 2011. Briggman, Helmstaedter, & Denk, 2011). However, this process (if it works) requires dead and preserved brains. Due to the break in continuity of consciousness, minds uploaded through this technique may be mere copies, rather than the same individual.

Another proposed technique that preserves continuity of consciousness is the Moravec process. In the Moravec upload, neurons are replaced one by one with artificial replicas, which preserve the full functionality of the neuron while also being digitally accessible. By definition, at each step the entire brain continues functioning as before, but once the process is completed it consists of Moravec digital neuron equivalents

(Moravec, 1995). While it is currently possible to interface with a single neuron electrically, the signal generation and processing hardware is much larger than the neuron that may be replaced. Since first proposed in 1988, Moravec's procedure is a thought experiment, with major work to be done in areas of biocompatibility, synaptic rather than electrical connections, and the murky area of the ambient chemical environment of the brain, as opposed to immediate electrical connections with clear comparisons to circuitry.

A third approach to uploading minds is to build a computer system which models a generic human brain, and then use detailed brain recordings from fMRI, EEG, or similar techniques to match that generic brain with that of a specific human. A pair of major programs in 2013, the American BRAIN initiative and the European Human Brain Project unveiled decade-long, multimillion dollar proposals to map the human brain and develop paradigmatic breakthroughs in neuroscience. These "big science" projects, however, are distinct from the many leaps required to emulate a human brain. The US BRAIN initiative describes its focus areas as:

Generate a census of cell types, create structural maps of the brain, develop new large-scale network recording capabilities, develop a suite of tools for circuit manipulation, link neuronal activity to behavior, delineate mechanisms underlying human imaging technologies, create mechanisms to enable collection of human data, [and] disseminate knowledge and training. (Bergmann & Newsome, 2013)

These fundamental research targets are set to understand and develop cures for neurological diseases like Alzheimer's, Parkinson's, and traumatic brain injuries. The BRAIN initiative includes a neuroethics component similar to the Ethical, Legal, and

Societal Implications (ELSI) program of the Human Genome Project, which has not yet considered uploading as an ethical matter, but recommends ethicist input at all levels of the research program (Gutman & Wagner, 2014).

The American BRAIN project takes a pluralistic, basic research-first inspired approach based around consensus in the major stakeholder agencies: the National Institutes of Health, National Science Foundation, and Defense Advanced Research Projects Agency. The European Human Brain Project is described as a more visionary project, centers around the work of Henry Markram and recreating the brain *in-silico*. Despite \$1.3 billion Euro funding, a significant portion of the European neuroscience community opposes the project as insufficiently rigorous in hypothesis testing and going directly for simulation without sufficient data to verify the correctness of the simulations (Frégnac & Laurent, 2014). Even this more simulation-oriented program does not see uploading as a crucial research aim; instead, research goals are increased accessibility to viable simulations of the brain through a scalable and verified programming interface capable of examining neural activity from gene expression through whole brain regions (Markram & Hellgren-Kotaleski, 2015).

The uploaders share a significant overlap with some members of the artificial intelligence (AI) community, in particular the fast take-off Singularity school associated with Ray Kurzweil. Kurzweil argues that human-like AI is a matter of processing power and that the hardware supporting previous AI efforts in the 1950s and 1980s was at best equivalent to an insect. Extrapolating from Moore's law, the expectation that the density of transistors in an integrated circuit doubles every 18 months, in 2005 Kurzweil argued

that by 2020 human-equivalent AI would be possible on \$1,000 computer hardware (Kurzweil, 2006).

Though AI seeks to either code human-equivalent sentience from first principles or use some kind of generalized learning system and large datasets to train the proper responses, while uploading seeks to emulate human neurology as the only existing physical system that exhibits intelligence, there is a close philosophical kinship between an artificial being created in silicon, and a former human now living in a computer system. The singularitarians extend this kinship by noting that as ever-increasing speeds are a durable part of the computing landscape, and that an AI will be able to modify and optimize its own code, a human-level AI or upload should rapidly become super-human. This of course assumes that any technical problems of increasing intelligence or desired capacities are within the ability of the AI to understand and that manipulating some part of the system can be done without causing negative cascading effects through the rest of the system. Though in crude measures, the data in a super-computer is equivalent to some representations of the data in a human brain, Kurzweil's predictions about radical qualitative transformations in computing have not been born out, and certainly not at the cost or scale envisioned (Rennie, 2010). With uploaded minds or human-equivalent AI still fictional, the idea of hacking and improving these systems is fiction built on fiction.

Rejuvenators, the third techno-political approach, argues that the cellular changes associated with aging are preventable and ultimately reversible. Starting with accepted medical practice of proper diet, regular exercise, and avoiding smoking, rejuvenators argue that with death as the ultimate and universal evil, medical research should be systematically devoted towards reversing the "seven deadly sins" of aging, rather than ad

hoc wars against cancer, heart disease, Alzheimer's, etc. (DeGrey, 2008). Aging is a distributed, molecular and cellular process, and by targeting cell loss, cell senescence, accumulation of lysosomal junk, extracellular junk, sugar-protein molecular bonds, and mutations in mitochondrial and nuclear DNA, medical technology can eliminate the differences between young and old tissues, and therefore prevent death entirely, rather than working around a cascade of organ failures associated with old age. Anti-senescence techniques anticipate advances in enzyme manipulation, stem cell therapy, and genetic repair in adult cells. DeGrey's argument is that individual cures for diseases will soon cease to show improvements in lifespan, as the vast number of comorbid conditions at advanced age mean that avoiding heart disease becomes a death from cancer a few months later, or respiratory failure in bedbound senile patients. Only an approach that tackles mortality at its root can meaningfully improve quality of life.

Rejuvenation is the least radical transhumanist program in terms of its philosophical implications for identity and society, at least compared to a significant population of uploads or people in various states of cryopreservation and resurrection. While the idea that death is a necessary and fulfilling component of the human experience is common to many belief systems, very few people express a desire to die immediately, or even in the short term. Death is almost always something to be put off for the future. However, in practical terms rejuvenation requires working with living bodies in situ, with all the implications for FDA regulation and lack of clarity on results. Both cryonics and uploading require at least one, if not multiple breakthroughs to become effective technologies. Rejuvenation requires those breakthroughs to occur in a realistic, not merely theoretical context.

Transhumanist Ideology and California Cyberculture

Transhumanism can be seen as a technological project involving human beings and as a related the social movement attempting, but it is perhaps best represented as a worldview, a characteristic style of thought. Max More argues that transhumanism builds off of the humanist tradition, but viewing humans as an evolutionary step between an animal past and a technological future is as much of a rupture from the humanistic formulation of inherent human rights, as humanism was from a world defined by an external divinity. The origin that More elides in the transhumanist story is the idea of the cyborg and a particularly California kind of faith in self-improvement through high technology, psychedelic experiences, and appropriation of Eastern mysticism. Cyborgs, now a staple of science-fiction and a metaphor for socio-technical-biological chimeras (Haraway, 1991), were originally conceived by Clynes and Kline (1995), a pair of clinical psychologists, in 1960 as the ideal astronaut, a self-regulating system capable of enduring the rigors of outer space. To the idea of biological self-control in extreme circumstances, transhumanism adds the exploration of inner space, and the creation of new kinds of minds as well as bodies.

It is unclear if the links between psychedelic expansion, radical politics, and computer innovation that characterized Silicon Valley were causal or merely associational, but it is clear that Palo Alto in the 60s and 70s was the site of epochal cultural and technological revolution, where “parallels between mind expansion through the use of psychedelic drugs and through the new kinds of computing that were being developed around the Stanford campus” (Markoff, 2006) laid the groundwork for the omnipresent personal computerization of the 21st century. The attitudes towards the self

and technology that characterized the invention of the personal computer at the Xerox PARC lab are the most obvious emotional predecessors of the transhumanist movement. For those who lived in the world of the personal computer revolution, where lab director and human-computer interaction pioneer Doug Engelbart's dream was realized, and the computational power of the computer was trivially accessible through a visual interface, the next step would be to further unite the mind the computer, both in the sense of the cyborg, but also in the sense of the continual upgrade path made possible through Moore's Law. More powerful than any reality is the perception that a solution to any particular problem is just around the technological curve, for much less money.

H+ Magazine provides a useful look into the California ideology of the transhumanist movement. As an artifact, *H+ magazine* is a glossy 80 page publication, covering in roughly equal parts the latest scientific developments, short essays on a variety of topics, and reviews of books and movies from a transhumanist perspective. It welcomes interaction and exploration; many articles include hyperlinks to sources and online discussions. Though the magazine is purely digital, being distributed as a pdf file , the graphic style, editorial tone, and general feel is strongly reminiscent of a print copy of *Wired*. In fact, the driving force behind *H+ magazine* is the editor, R.U. Sirius. R.U. Sirius is an exemplar of a certain flavor of Silicon Valley culture. A former Yippie⁷ and devoted acid freak, he co-founded and edited *Mondo 2000* and wrote regularly for *Wired* in the early 90s. R.U. Sirius draws from the same underlying cultures as transhumanism:

⁷ The Yippies (Youth International Party) were a radical 1960s counter-culture movement founded by Abbie Hoffman and Jerry Rubin, notable for media stunts like nominating a pig named Pigasus for president at the 1968 democratic convention and dumping dollar bills on the New York Stock Market Trading Floor. Their actions were widely derided as distractions by the Political Left of the period.

the excitement and wonder of science-fiction, the technological mastery of computer hacking, and the personal experimentation and anti-authoritarianism of psychedelia. As R.U. Sirius describes his own life trajectory after deciding to be a hippie in 1967:

The tech thing was not so natural a fit for me. I wasn't a science or science fiction nerd. But one of the ideas that was going around in the counterculture of the '60s was that technology would eliminate boring and alienating types of labor. For some of us, this functioned as an excuse to live the way we wanted to. And then, a number of counterculture spokespeople, including William Burroughs, Stewart Brand, Timothy Leary and Robert Anton Wilson were talking about tech and science as being a way towards a transformative and far out future — what Leary called science fiction. I was utterly infected by that thinking. But I was also infected in the '70s by punk and new wave. So these various forces, psychedelia, tech/science and the speediness and sharpness of punk and new wave kind of collided in my brain. After a 500 microgram LSD trip, I decided to create a “neopsychedellic wave” combining those influences.

(Fahey, 2014)

Editing a transhumanist magazine was the natural evolution of Sirius's orientation, from radical psychedelic politics to cyberculture and technological disruption.

H+ magazine represents a neatly packaged synthesis of the transhumanist movement, with greater effort and permanence than the ad hoc collection of blogs and personal websites that most transhumanist discussion occurred on. *H+ magazine* is particularly useful as a representative sample of transhumanist thought because it

contains articles by almost every leading transhumanist writer, and is designed both to introduce transhumanism to a general audience, and develop a common frame of reference among transhumanists that encompasses both libertarian and progressive politics.

H+ Magazine article topics are wide ranging: nanotechnology, brain scanning and neural interfaces, genetic engineering, how to cadge modafinil from your doctor and get started with do it yourself biotech, as well as pop culture interviews with the creators of shows with transhumanist themes like *Battlestar Galactica: Caprica* and the fiction of Philip K. Dick. The tone is relentlessly optimistic and irreverent. The 2008 Financial Crisis is a mere speed bump on the path towards strong AI management of the economy and a network of global power satellites which will provide energy too cheap to meter (Lightman, 2009). Advertising provides a measure of the success of a publication, and by this measure *H+ Magazine* never achieved viability. There are four ads in each issue: for the Alcor cryonics foundation, for Knome personal genetic testing, for a nutritional supplement called Neurvana, and for the next transhumanist/AI conference. This reflects a narrow base of financial support. After a brief spurt of productivity around 2009, *H+ magazine* returned to a weekly blog format with a rotating set of authors and more amateurish web design (Hay, 2014).

Bioconservatism: In Defense of Human Nature

Every thesis has its antithesis, and the plan for technological improvement that undergirds the transhumanist ethos has attracted a wide degree of criticism from thinkers broadly aligned in the bioconservative movement, a stance in bioethics that holds that most of, if not all of the transhumanist position is misguided and dangerous. As well as

pragmatic concerns about safety, efficacy, and equality, the bioconservative critique of enhancement moves along two major lines: (1) the necessity of a fixed human nature as a foundation for a political stability and (2) limits to ambition as a component of ethical thought.

For Francis Fukuyama, modern society is sustained by a delicate balance of legislative precedents, innate rights, and the biological past of humans. “Human nature shapes and constrains the possible kinds of political regimes, so a technology powerful enough to reshape what we are will have possibly malign consequences for liberal democracy and the nature of politics itself” (Fukuyama, 2003, p.7). Basic equalities in the origins of capacities and the inevitability of death provide the foundations for democratic participation, meritocratic promotion, and the slow but necessary change of society. Fukuyama, following Rawls and Kant, describes society as founded on the basis of an essential moral ordering that arises from the dignity of an intrinsic human nature (Fukuyama, 2003, p.156). When pressed on the exact nature of this dignity or human nature, Fukuyama begs the question. It cannot be language, because some humans cannot speak. It cannot be the ability to feel suffering, because animals experience pain and are not human.

Fukuyama identifies the foundational quality that makes politics and liberal democracy possible as Factor X, unknown and unknowable.

What is Factor X? That is, Factor X cannot be reduced to language, or sociability, or sentience, or emotions of consciousness, or any other quality that has been put forth as a ground for human dignity. It is all of

these qualities coming together in a human whole that makes up Factor X (Fukuyama, 2003, p.171).

Having postulated advances in biotechnologies as a threat to human nature, Fukuyama then defines human nature as the emergent qualities of a genetic endowment so delicate to contemporary conditions that any changes must be a threat. In particular, the increased control over human biology applied by systematic enhancement is liable, in his view, to lead to a social hierarchy based on quality of genetic alterations, increased competition and a decrease in social cohesion, and a utilitarian ethos overwhelming individual rights and responsibilities. The only proper response is government regulation to intervene and control enhancement, life extension, and cloning technologies in order to preserve the current foundations of democracy.

In the report *Beyond Therapy*, Leon Kass and Presidential Bioethics Council make a comprehensive argument against a variety of transhumanist proposals, arguing that the desire to remake, extend, and perfect the human form is a kind of hollow Prometheanism. Striving and true excellence can only be obtained within a context of flaws and limits:

This attitude is to be faulted not only because it can lead to bad, unintended consequences; more fundamentally, it also represents a false understanding of, and an improper disposition toward, the naturally given world. The root of the difficulty seems to be both cognitive and moral: the failure properly to appreciate and respect the ‘giftedness’ of the world. (Kass, 2003).

What Kass and co-authors dance around, in this language of Promethean hubris and unintuitive negative consequences, can be concisely explained as the doctrine of Original Sin: humans are innately flawed, and the proper course of a well-led life is developing the grace to accept and love one's own flaws and the flaws of others. Bioconservatism sees in the transhumanist program not only the mundane risks of new technology—that they may have unintended side effects or not work as well as advertised—but a set of existential risks so great that even small steps in a transhumanist direction lead towards disaster.

The Chimera of Treatment and the Correct Analogy

Bluntly, very few people are strict transhumanists or bioconservatives. Rather than making decisions based on some essential human nature, which is either continually changing or the final fixed point around which other things orbit, most people and institutions are logical morasses of qualified beliefs, contextual judgements, and business as usual. My surveys point to this, with the many respondents noting that the use of ADHD medication is acceptable with a doctor's prescription. If an intervention is regular, is done according to professional best practices, is deployed in a manner to treat a disease, then it is socially acceptable. An enhancement which is radical, which does not fit into accepted medical practice, and which is used by an already healthy person is suspect. In short, the conventional wisdom is that the treatment/enhancement distinction is clear in all but a few fringe cases, and useful guidance for implementing or regulating emerging technologies. Against this conventional wisdom, both transhumanists and bioconservatives argue that the treatment/enhancement distinction is not a clear boundary, and is entirely insufficient.

The strongest claim in favor of the treatment/enhancement distinction is that:

The biomedical sciences for humans, like the veterinary sciences for animals, study both the variation in the functional organization typical for our species and the departures from normal functioning that we call disease and disability. The line between disease and disability and normal functioning is thus drawn in the relatively objective and nonevaluative context provided by the biomedical sciences, broadly construed (Daniels, 2000).

Treatments are those which return a patient to normal functioning, as objectively defined by the sciences. The question therefore becomes one of determining the “normal”, of properly diagnosing disease and disability. As the prior chapters demonstrate this is anything but relatively objective. The process of defining a disease and its proper treatment, of fitting it into medicine as it is practiced by human beings, involves constant micropolitical negotiations of expectations. For categories which are non-trivial to define, such as intelligence, personality, or aging, the normal and the abnormal become categories of evaluation, and a means of systematically extending subjectivity across a collection of individuals (Rose, 1990. Bowker & Star, 1999).

On the bioconservative side of the debate, Kass argues that the treatment/enhancement debate invites ethicists to wander down a semantic rabbit-hole of definitions and medical vagueness, to become lost in statistics about normal curves and where those curves shade into abnormality. These discussions distract from “Proper ethical questions: What are the good and bad uses of biotechnical power? What makes a use ‘good,’ or even just ‘acceptable?’” (Kass, 2003) A focus on motive, on the second

and third order effects of an intervention in society, and on defending human nature in all its vagaries is the terrain that Kass stakes out.

Similarly, the transhumanist side notes that many enhancements to natural capabilities are already considered to be a basic part of civilization: high nutrient diets from agriculture, literacy, vaccines, and eyeglasses all being “enhancements” with relatively recent presence in human history, if what we are concerned about is alterations from a state of nature (Crow, 2012). To argue that the biomedical features of an intervention are what make it problematic is arbitrary and reduces human beings to their biological qualities (Buchanan, 2011). The widespread rise in IQ test scores over the past century, the Flynn effect, appears to be one such enhancement due to better childhood nutrition and education (Flynn, 1987). If this change is considered to be good, so might the widespread use of intelligence enhancing drugs.

Transhumanists and bioconservatives are two sides of similar scholarly tradition that takes defining human nature and “the good life” as a key explanatory role. This approach of reasoning from first principles is proper for philosophers, but few people are philosophers, or even philosophically coherent. One might throw up his or her hands at this; give up philosophy in favor of asking people how they would decide in a given situation and then retroactively creating a standard for decisions from what is publically acceptable, a kind of collective ethics as a French group has done with self-driving cars programmed to crash in ways that endanger their occupants in favor of more vulnerable pedestrians (Bonnenfan, Shariff, & Rahwan, 2015). This approach however, would also be a dereliction of scholarly duty, to merely observe what the public considers acceptable today without thinking about how norms should evolve in the future.

“Humanness” is questioned, mangled, and made through processes and technologies far less fantastical than a Moravec brain replacement or a society defined by a genetic caste system. For those involved in the transhumanist debate, future technologies are a key tool to think with, because of their wide-reaching effects: cryonic suspension, minds in computers, biological immortality, and vastly increased human potentials. However, the effort to demarcate between proper uses of technologies, for both approaches, misses the immense adaptations that humans have already made, and the way in which everyday miracles of science and technology become mundane, even sources of complaint. In the interstices of civil rights, biomedicine, drug diversion, and academic competition, people create their own working definition of what acceptable human norms are, right now. Those norms change slowly, even the relatively rapid redefinition of disability rights explored in chapter 2 took years from writing Section 504 to implementing regulations, and decades more to extend even incompletely outwards into society. I think a worthwhile project for all concerned is to defend notions of the human today; not in some utopian future or idealized past, but in institutions that embody liberal values about the power of the knowledge, and the importance that the ability to use that knowledge responsibly be distributed as widely as possible.

A great deal of work has gone into substantive assessments of future technologies, and into building democratic participation into the process. A full review of these projects in responsible innovation, real-time technology assessment, or epistemic democracy is beyond the scope of this section, but I would like to note that a proper choice of analogies matter for these sorts of futurology exercises. There are many details of any future technology, but only a few cognitive schema which offer explanation in a sea of noise.

The typical analogies about transhumanist technologies say that it's like medicine, because it involves intervening in and improving human bodies. Or perhaps it is a matter of code, because information and computation are the dominant technologies of the present, and by rewriting the genetic and neural "codes" of people we can then improve them. I use the analogy of education, because it directs our attention towards a site that we all understand as students and that many of us understand as teachers as well, a site that reminds us that these processes are incremental and rarely proceed in an orderly fashion in the wake of single massive new technology or idea, and a site which has traditionally been governed by democratic norms, both internally as the "republic of knowledge" and externally with the support of the State.

Conclusion: Towards Transhuman U

If at one point universities had a clear purpose, say the human development of students in accordance with the values of knowledge, that mission is now merely one among many. The modern university, responsive to the needs of an increasingly diversified, specialized, and expert driven economy, created a similarly responsive and customizable set of classes, programs, and certificates, as opposed to the one-size-fits all humanistic canon or the classical trivium and quadrivium. The intellectual development provided by classes is just one part of a holistic personal development that involves opportunities for community service, on-campus social life, intramural athletics, healthy dining, and hands-on career development. I would like to suggest that transhumanism can provide a guiding principle for universities and can serve to build better humans and better communities.

According to surveys of how students spend their time, academics may be one of the least important parts of the college experience, with an average of 16.5 hours per week spent on academic activities (Bureau of Labor Statistics, 2015). Classes are deliberately unstructured to facilitate independent learning and time management skills. Evaluative and grade-point intensive exams and major papers are crammed into a few weeks in midterms and at the end of the semester.

Currently, as my survey shows, stimulant medication is widely available on campus, thanks to the high rate of prescription for ADHD nationwide. My survey population sees hard work as more important to success than innate talent, and while severe forms of cheating are unacceptable, certain moral compromises can be made for lesser violations. Within the conventional structure, there are few good options for college administrators. Disciplinary and counseling resources are insufficient to punish clear violations of academic integrity, student safety, and self-harm, let alone expand the eye of surveillance to the 31% of students who at some point have used stimulant medication without a prescription. Though by Foucault's theorization, the action of the panopticon does not require constant surveillance to have a disciplinary effect, it must cultivate an aura of omnipresence and omnipotence, a far cry from the overworked, cautious, and "responsive" administrative culture in vogue. Students these days know they are customers and that the customer is always right.

The risks of the kinds of non-prescription use of stimulant medication discussed in Chapter Four are worrying. Amphetamines are an addictive and legally controlled substance; students can experience very severe health and legal consequences from what they see as a reasonable use of stimulants. When we add substances with relatively short

and undocumented histories of human use to the mix, the possible outcomes are only more dangerous. Students, non-experts, could take large doses of, or combine drugs that would be otherwise safe, but together become dangerous. Proscribing cognitive enhancement only discourages students from seeking assistance, if there are disciplinary consequences attached to the use of cognitive enhancement or even mandatory health leave, students will be loath to jeopardize their careers or expose themselves to the disapproval of peers and family members by seeking assistance with pharmacological cognitive enhancement.

The current administrative response towards cognitive enhancement is failing and, as cognitive enhancements become more capable and more common, the failures in the system will only become more apparent. University administrators should move towards an active response that recognizes the realities of the situation on the ground.

Universities have always been sites of cognitive enhancement, of helping people to think more clearly, and in the 21st century that means grappling with the neurological components of “better,” as well as the cultural and skill-based aspects. What if the university should sponsor the use of cognitive enhancement through an office similar to the existing Counseling Service, or office of Disability Support Services?

Avoiding the negative consequences of cognitive enhancement abuse is a compelling but ultimately insufficient reason to warrant such a radical change in academic policy. I believe that facilitating access to cognitive enhancement is in line with the aims of the academy. Education is supposed to not only grant familiarity with a body of knowledge but also to equip students with the skills to learn throughout their life and to enable them to use the mental extensions common to their time and place. Writing

and reading is at the core of the basic curriculum, to which modern scholarship has added the use of computers and electronic resources. The task of higher education is mind expansion, not in the sense of psychedelic upgrading implied by the California ideology but through fostering minds to flourish in their own paths, to link new ideas to fulfilling lives in the Deweyian sense. As pharmacological cognitive enhancement becomes more possible, that should include familiarizing students with the use of, and the risks related all methods of cognitive enhancement. With the already close tracking of student performance, the balance between solidarity and competition, the expectation to try and succeed at new things, there is a space for an institutional shift that treats cognitive enhancement not as a patch to get through poor time management during finals week but as an integrated experiment towards positive cognitive enhancement for an entire community. An integrated education includes textbooks, problem sets, labs, healthy sleep and diet habits, and the appropriate use of mind extending tools, including computer programs and stimulant substances from caffeine to modafinil. The goal is to avoid crystalizing a culture of misuse, akin to much of the status of alcohol on campus today, where abuse and over-indulgence leads to deaths and serious crime.

One social objective of universities is promoting social justice. A common critique of cognitive enhancement is that it will increase the gap between rich and poor. Colleges can subsidize cognitive enhancement in the same way that they subsidize tuition, ensuring that people of all socio-economic backgrounds have access to the benefits new technologies and techniques. There will always be divisions on campus: indeed the structure that attaches students to majors and extracurricular clubs seems in some instances to create tribalism, with sports rivalries between schools the greatest

example. Though universities cannot force students to ignore pre-existing class and racial distinctions, they can encourage tolerance and diversity. Through governing and regulating cognitive enhancement, rather than simply banning it wholesale, universities can avoid exacerbating the division between enhanced “haves” and mundane “have-nots” identified as a threat to a democratic future by both Fukuyama and Buchanan.

The single largest problem is facing any implementation of a cognitive enhancement technology is currently separating hype from fact, from linking improvements in indicators such as levels of brain chemistry or short-term performance to long-term gains. Good science is currently devalued in favor of either off-label use of prescribed drugs or in the unregulated field of nutritional supplements (Dietary Supplement Health and Education Act of 1994). As long as cognitive enhancement remains on the fringes of cognitive science, rigorous double-blind studies will not be pursued. There is a long tradition of using university students as research subjects, and while the ethical obligations are far from clear, the interest of universities in the long-term well-being of the student body mitigates against some of the most overtly exploitative aspects of for-profit human subject research (Elliott, 2010). Favorable university policies, by demonstrating an established, legal market for these products, justify proper studies on their use while protecting the subjects of a Phase IV “real-world” clinical trials, which follow large numbers of normal people a drug to more precisely determine effects and safety.

This does not mean that colleges should be handing out stimulants like candy; close oversight of the process is vital to its integrity. One failure of the current system is that it encourages gray-market abuse of the mental health system, to the detriment of the

system and its users. Following Greely et al.'s (2008) recommendations for responsible use, cognitive enhancement should be overseen as one component of a whole system of education, not just a means to further increase competition in the high-end. Forcing students to articulate their goals for cognitive enhancement, rather than seek a diagnosis, is a step towards authentic self-knowledge. Some students may recognize that there are pressures they are not willing to accept, and adjust their life goals accordingly. It is best that these epiphanies be reached early in life, rather than during a mid-life crisis where it might cause major disruptions to a person's self-image, career, and family.

Widespread use of cognitive enhancement is not a given. Academic policies of the type I am advocating will have widespread social consequences. Students take what they learn in school into the real world, diffusing cognitive enhancement into society. Even so, path-dependency means that the exact nature of our transhuman future is undetermined, and that if these technologies fall into the wrong hands, the future could become a very unpleasant place. How things fall out will depend on the policies of the first effective transhumanist organizations. Facilitating better habits about cognitive enhancement substances in college may improve outcomes throughout life.

Allow me to lay out some scenarios. Democratic nations are too diverse to enact active transhumanist policies; we cannot come to a consensus on basic issues like healthcare, reproductive rights, and energy policy. How then can democracies expect to bring together a coalition for the reformation of the human species? The kinds of nation-states that are best positioned to pursue transhumanist policies are authoritarian capitalist nations like China and Singapore, or wealthy tax-enclaves like Monaco and the Bahamas.

From this, we wind up with the much castigated rich-poor divide, or a resurgent fascism. Neither is acceptable.

Liberal policies could permit individuals to pursue transhuman lives, but some will be left out of the transhuman revolution. Ad hoc pursuit of transhumanism might lead to a deadly cycle of reaction as conservatives try to suppress a nascent transhuman movement with a base in urban liberalism, exacerbating current culture wars.

Transhumanists, under pressure and seeing themselves as above the mass of humanity, might be the victims of crime, as wearable computing pioneer Steve Mann already has been (Rottblatt, 2012). If enhancement is expensive, and sponsored by employers, it would further tie humans to corporate interests and lead to enhanced intelligence and other abilities in service of the extraction of profit rather than seeking the good life, wherever it may be found.

Universities are uniquely situated to guide transhumanism in a benign manner. A commitment to diversity and the pursuit of knowledge orient proto-transhumans towards responsible use of their abilities. The policies and attitudes established by a university, which is less directly subject to political or economic influence, would most likely be more balanced and rational than those originating in the bodies described above. Though nations, corporations, and individuals will have to come to terms with transhumanism, having universities frame the parameters of the debate would help all parties consider the issues fully, and discuss policies that match our social goals. As students spread out into the real world, they will bring with them their attitudes towards and use of cognitive enhancement. Universities have a responsibility towards their students and the wider

communities to make sure their policies are a positive force, and not a source of confusion.

The various transhumanist programs described in the first part of this chapter have not met with success because their goals are more ambitious than the realities of scientific research can support, but also because the movement is a haven for visionaries, enthusiasts, and cranks, not system builders. Similarly, bioconservatives are right to be concerned about enhancements beholden to no one, not even their inventors. But power can be constrained, turned in positive directions, distributed and governed. The problems of transhumanist hype, bioconservative fears, and the erosion of liberal values in the university discussed in Chapter Three have a common solution. Stimulant medications used for cognitive enhancement have already entered the university via the backdoor of the ADHD epidemic, itself a consequence of interactions between psychiatry and the enactment of novel rights. The challenge therefore becomes one of aligning the many pieces, technical, legal, and cultural, to ensure that future uses of cognitive enhancement flourish in the light of day, with the consent of users and those who consciously choose not to use, rather than continuing to lurk in the gaps between the responsibilities of the medical and educational professions. As the widespread use of stimulant medication by college students shows, something is being born, but without care and attention, it will be stillborn or monstrous. My proposals are far from definitive, and I doubt that more than a small minority of people will agree with the answers by the mainstream transhumanist movement. We should all ask ourselves the question that drives transhumanism, stripped of its specific technologies or California influences: *What are we becoming?*

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