Chapter 26
Frankenstein, Monsters, and Science Education: The Need for Broad-Based Educational Policy

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Amid the hype and paranoia about the failure of American schools, there is an energizing optimism in education these days. Many believe that our present moment is ripe for imagining and implementing a better education for youth. Along with the other contributors of this book, I am one of these believers. Yet it has also become clear that we cannot (and should not) rely on narrow policies to introduce the type of broad-based and comprehensive educational changes we need for youth in contemporary society. Despite much rhetoric for change during the 2008 presidential campaign, the current President does not differ much from his predecessors concerning the *purposes* of education: the main goal of education is, and has been, to help individuals secure employment so America will remain competitive in the global economy. In this chapter, I challenge this popular way of thinking about education by illustrating the problematic aspects of an education policy predominantly devised to meet this goal. This chapter is not about any particular policy problem *in* education, but the problem *of* education – namely, that it is becoming increasingly narrow, more technical, and reduced to the status of job training.

I hope to show that expanding the dominant paradigms of educational research and policy is important for thinking about not just how education *can* be improved but also why education *should* be improved. On the heels of No Child Left Behind and at the onset of Race to the Top, what is lacking in many research and policy circles is a set of basic questions concerning what education is for and what sort of persons education should cultivate. Although such questions tend to go overlooked for the sake of practical convenience, I contend that they are at the heart of all areas of education.

In joining J. Myron Atkin (2007), I will discuss how revitalizing longstanding modes of human understanding by incorporating the wisdom of the humanities (e.g., philosophy, history, the classics, and literature) provides valuable insights in

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thinking about education, particularly with respect to science education. As a case in point, I will take Mary Shelley's novel *Frankenstein* (1831) and use it to: (1) highlight the problems and dangers of implementing narrow education reforms, and (2) explore why a more comprehensive direction in science education is needed. Ultimately, my hope is that readers will come away from this chapter with a renewed appreciation for the many purposes of education, and perhaps a richer, more comprehensive understanding about the possibilities of policy in science education.

Policy in Education

Educational policy is a very large tent. It is well beyond the scope of this chapter to adequately describe this nuanced and expansive field. Educational policy can encompass a breadth of issues and areas, including, but certainly not limited to: assessment, accountability, student achievement, teacher quality and development, curriculum, funding, equal access, and school choice. Additionally, all of these areas can be explored at the early childhood, middle, secondary, and post-secondary levels. Policy can be developed, decided, and carried out in a number of ways – through legislation, a judicial decision, curricula reform, a board of education, a business-school contract, or a code of conduct. Thus, it can be problematic to paint "educational policy" with a broad brush by over-generalizing it as one thing. However, while there are many variations in the field, it is the commonalities that are the focus of this section.

A policy, in the most general sense, is a plan of action for solving a specific problem or achieving a stated goal. While this may seem fairly simple, how exactly policy occurs in education is much more complicated. Educational policy is always a political endeavor because it always involves decision-making about the problems and goals of communities (Stone 2002). Whether large or small, a community must decide on strategies regarding the what, when, and how of education. Any choices concerning the strategic allocation of goods, services, or recourses requires group thinking and group action. As difficult as it may be to accept for those who want immediate or clear-cut solutions, policy is laden with human interests and values, because policy happens within human communities (Stone 2002). And values and interests are not always clearly defined or even understood by those engaged in the political process; in fact, they are usually implicit, complex, and socially shared.

Decision-making in communities involves dynamic power relationships between many groups and individuals. In public education, a range of actors and coalitions are involved in decisions that affect their communities, including teachers, administrators, parents, state and local boards of education, legislatures, committees, lobbyists, unions, and other school and district authorities. Each brings their own values, agendas, and often different goals to the policy table. In the networks of education policy, conflict of interest is the norm, not the exception. Competing interests take time to unravel, trade-offs must be made, and plans of action will invariably satisfy one party while disappointing another. Thus, policymakers must

be malleable and allow their reforms to remain open for revision and adaptation. Getting something accomplished, then, is a matter of open dialogue, cooperation, negotiation, and reconciliation – all the necessary components to political life.

One major challenge in education is that policies are debated and devised by those who hold limited terms and tend to hold limited – sometimes even whimsical – interests. For better or worse, short-term solutions frequently take priority over long-term reform. Stakeholders want to get things done, even when political expediency conflicts with consequential change. As President Obama himself acknowledged after the sweeping defeat of Democrats nationwide in the 2010 midterm elections: "We were in such a hurry to get things done that we didn't change how things got done" (White House 2010b). As I will discuss later, being too concerned with quick-fix tactics in education can greatly limit more meaningful possibilities and horizons. It is not that the technical strategies are not important: In fact, they are central in education policy. However, if we become too consumed with questions of relevancy and applicability, then our understanding of human education and its purposes is severely lacking (Hostetler 2010).

It should be clear by now that, although we may wish it to be the case, policy is not a straightforward or even rational process (Stone 2002). If it was, then it would be as simple as identifying an educational problem, pinpointing a solution, and then implementing practical applications to solve the problem. But since policy making does not happen in this simplistic fashion, complexity emerges with the very first step of identifying the problem. For a community to identify something as a "problem" that needs fixing, value judgments must be employed. That is why the editors of this book have collected the perspectives, knowledge, and experiences – the stuff that informs human values – of a variety of authors, students, teachers, parents, youth activists, and other education and policy actors. We feel that much more is needed than a report or research study to guide thinking and action in educational policy as it is concerned with science education. While many of us will draw on particular reports or research studies, as a collective, we have come together to share our values about what it means to educate ecologically and socially responsible citizens. We are not just concerned with *how* policy is to be implemented or simply with *what works*. We are also concerned with *why* policy should be implemented. And a conversation about why policy should be implemented entails asking questions about the goals of education.

Goals of Contemporary Public Education

> There was a time when educators became famous for providing reasons for learning; now they become famous for inventing a method. –Neil Postman (1996, p. 26)

Many well-intended folks in education believe that if there is more scientifically-based research conducted on, for example, teaching methods, student achievement, or classroom management, then many of the problems in schools can be addressed

and solved. The problem with this way of thinking is that it misses the forest for the trees. In this case, the trees are the technical approaches to education research and policy that are mainly concerned with what works in carrying out change, and the forest is the broader moral discussion regarding the reasons why we want change and what we are implementing change for – that is, the goals of education. David Labaree (1997) accurately puts the problem this way:

> Goal setting is a political, and not a technical, problem. It is resolved through a process of making choices and not through a process of scientific investigation. The answer lies in values (what kind of schools do we want) and interests (who supports which educational values) rather than apolitical logic. Before we launch yet another research center (to determine 'what works' in the classroom) or propose another organizational change (such as school choice or a national curriculum) we need to engage in a public debate about the desirability of alternative social outcomes of schooling (pp. 40–41).

The purpose of this section is to do just that: Engage the main goals of education in our present moment.

Labaree identifies what he sees as the three main goals for American schools: (1) democratic equality, (2) social efficiency, and (3) social mobility. Education for the goal of democratic equality stipulates that teaching students about and for citizenship and democratic participation are essential purposes to schooling. The goal of social efficiency focuses on education's role in helping students acquire employment so that they may do their part in contributing to the collective economic well-being of the society. Both of these goals, Labaree points out, are for the public good. The social mobility goal is different. It is highly individualistic, competitive, and posits schools as functionaries in preparing students to move up the social ladder. For Labaree, the social mobility goal poses the greatest threat to public schooling, as it essentially turns public education into a private commodity in which schools are, first and foremost, places where market choice, status, and wealth undermine the civic goals in education. I agree with Labaree, but it seems to me that the two goals of social mobility and social efficiency have morphed. In the current gloomy economy, the social efficiency goal of education is dominating the political–educational landscape, which I believe has created an even more dangerous situation for the public and civic purposes of education.

Labaree discusses how social efficiency is not a new goal in education; it has long been an aim for American schools to help train productive employees so that society runs more efficiently. In fact, we are now at the point where this aim has become so deeply entrenched in the collective consciousness of Americans that it is taken for granted as a, if not *the*, main purpose of education. This is a big problem and warrants criticisms for at least two main reasons.

First, critical points of view should be brought to the fore since President Obama – arguably the most prominent national figure within the past 40 years for social, political, and cultural change – does not challenge the same old story of schools serving primarily economic purposes. Second, and more importantly, there are very real dangers to the education of citizens in a democratic society when education is presented and packaged as specialized job training for a particular occupation. When *public* education is conceived and carried out chiefly as

preparation for the *private* job sector, it predominantly serves the interests of the marketplace, industry, and corporations, not the interests of the public. Private values such as money-making, competition, materialism, production, and consumption are triumphing over public values such as good citizenship, community activism, equality, and justice. Anyone who believes that becoming a good citizen is something that needs to be learned in schools, and that civic learning necessitates a deep understanding and appreciation of democratic public values, has very good reason to turn a critical eye toward the type of reform initiatives the President has put in place.

The Race to the Top program is President Obama's signature contribution in education reform. It is a massive federal grant program instituted as part of the American Recovery and Reinvestment Act of 2009, a historic piece of legislation engineered to "stimulate the economy, support job creation, and invest in critical sectors, including education" (DOE 2009, p. 2). Race to the Top rewards the states that propose and carry out effective educational reform plans, as defined and prioritized by the "powers at be" at the U.S. Department of Education and the White House. The social efficiency goals of the program overshadow all other purposes of education. For example, the first of four "core education reform areas" is "adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy" (DOE 2009, p. 2). As such, state officials and policy reformers are in a frenzy to implement new standards, raise test scores, and institute rigorous accountability measures and more assessments in order to meet the Department of Education's demands for funding. Consequently, in meeting the Department's demands for funding means that states must meet the Administration's education goals. Since states had to clearly lay out exactly how their policies would honor the core aim of social efficiency, and since social efficiency is so widely taken for granted as a purpose of education at the state and federal levels, policies are being put in place throughout the country that reinforce this goal. As clearly stated in Race to the Top, successful states "will offer models for others to follow and will spread the best reform ideas across their States, and across the country" (DOE 2009, p. 2).

The social efficiency goal takes on even more authority in Obama's vision of higher education, as the *main* purpose of education is to ready students for jobs in the global economy. The hopeful expectation that President Obama would propose a higher education different from his conservative predecessors that focused on the aims of democratic participation and civic virtue has eroded. In depressive economic times, in a speech on education to students at the University of Texas, the President made it clear why he was taking the time out of his schedule to give a speech on education, using the justification that "Education is *the* economic issue of our time." The President's remarks were dominated with the following phrases: "lead the world," "out-compete," "growth sectors of our economy," "prepare our graduates to succeed in this economy," "lead the global economy in this century," "workers compete," and "make sure American remains number one" (White House 2010a). Of course, there were his usual warm and optimistic overtones, but on a campus to the

youth that elected him for political and social change, nothing substantive was said about education cultivating an engaged citizenry, justice, democracy, or peace. And certainly there was nothing mentioned about a more holistic education for deep understanding, human flourishing, art, beauty, love, or any of the other vast possibilities of education.

On rare occasion, Obama uses language that is far from politically astute, giving education a more transcendent purpose. In fact, the President's most bold and humane ideas regarding education can be found in his talks to younger school-age children. In a back-to-school speech to elementary, middle, and high school students in Philadelphia, the President affirmed that education is about more than just "getting a good job" and should give "each and every one of us the chance to fulfill our promise, and to be the best version of ourselves we can be" (White House 2010c). He goes on to discuss the role education plays in building mutual respect and character, and the importance of children embracing the wonders and diversity of human life.

While the President may feel in his heart that education is about more than getting a job, his rhetoric continually returns to the ultra-competitiveness of social efficiency. In the same talk, he says, "The farther you go in school, the farther you go in life. And at a time when other countries are competing with us like never before, when students around the world…are working harder than ever, and doing better than ever, your success in school is not just going to determine your success, it's going to determine America's success in the 21st century" (White House 2010c). While the social efficiency goal is not the only goal for this Administration, it is by far the most celebrated and valued, and thus occupies the prevailing role in both rhetoric and formal programs.

These criticisms do not mean that education should not serve as a way for youth to acquire gainful work, for education does and should do this. But as cultural critic Neil Postman (1996) eloquently puts it, when the goal of social efficiency (what he calls the God of Economic Utility) is "elevated to the status of a metaphysical imperative, we are being told that we have reached the end of our wits – even worse, the limit of our wisdom" (p. 36). Farmer, poet, and essayist Wendell Berry (1990) expresses a similar sentiment, when he wrote the following during the Reagan administration: "It seems that we have been reduced almost to a state of absolute economics, in which people and all other creatures and things may be considered purely as economic 'units,' or integers of production" (p. 130). I am troubled that Postman and Berry are terribly accurate here. When youth think of their educational experience, as well as their sense of self, others, and the world, around earning capital, competing, and consuming, *then earning a living becomes the very same thing as living a human life*. Human beings are economic beings for sure, but we are also moral, spiritual, artistic, and philosophical beings – and these aspects need to be as much a part of education as the economic. To incorporate a multitude of humanist perspectives and experiences, we must do a much better job in rethinking and challenging the knowledge claims that ground what actually goes on in schools and classrooms on a daily basis.

Education Research and Policy

Despite what we scholars might wish, educational policy is frequently divorced from educational research (Potter 2010). Schools do not need academic scholarship to implement a policy. For example, a local board of education can identify a problem, address it with a vote, and carry out a plan of action – all without policy research influencing or guiding its decision. However, educational research is increasingly becoming a decisive factor in education policy networks, especially at the federal level (Orland 2009). And there is an unfortunate trend in the relationship between education research and policy.

The type of educational research that is considered rigorous enough to influence policy is overwhelmingly scientific – that is, research of educational phenomena driven by scientific methods (Orland 2009). I deem this trend *unfortunate* because if policymakers and legislatures are genuinely interested in understanding and addressing the nuanced questions concerning what we are educating for and who we are educating, then there is not a broad enough spectrum of human perspectives in scientific educational research (Bullough 2006; Hostetler 2010). As discussed earlier, educational policy is about competing interests within communities; it involves human values and a never-ending culture of political persuasion and bargaining. Thus, it is doubtful that the single-handed scientific pursuit of educational problems alone will suffice if we want to enrich the lived experiences of youth and future generations through a holistic educational experience (more on this soon).

For those who submit to the view that empirically based scientific research will best influence policy, the knowledge and wisdom of the humanities are seen as less valuable – or altogether irrelevant. The conjecture here is that research perspectives that are not scientific or experimental are not applicable to the real world of schools and classrooms. One reason for this view is a mistaken belief that the theoretical disciplines like philosophy do not employ the evidence-based practices that will produce objective knowledge, which in turn, can be straightforwardly applied to practical solutions. I think this is a misguided way to approach education research and policy – a narrow view of education that makes policy research dry and unmoving, and makes policy discussion and debate uninteresting, and often inaccessible, for teachers, parents, students, and the general public.

I criticize this trend toward the scientific because I strongly believe that empirical research should not *monopolize* impacts on policy decisions. And I am not alone in this criticism. In one of the most influential and highly acclaimed books on public policy, *Policy Paradox: The Art of Political Decision Making* (2002), Deborah Stone writes, "What communities decide about when they make policy is meaning, not matter. And science cannot settle questions of meaning" (p. 379). Similarly, J. Myron Atkin (2007) affirms, "Scholarly styles rooted in science are inadequate intellectual tools for reaching decisions that center on identifying just what schools and teachers *should* strive to accomplish" (p. 67; italics original). The reason that Atkin emphasizes *should* is because science alone does not provide the whole picture with respect to what we ought or ought not to do – that is, how

human beings should act. Science is the study of what is, not the way the things ought to be. Works of literature and philosophy, on the other hand, go beyond describing the material conditions of *what is*; they explore human ethics and values about how we ought to act, how we ought not to act, and what *should* be. Simply put, no matter how rigorous, precise, or objective, scientific inquiry in education – and of its many contextualized relationships, processes, and problems – does not *sufficiently* capture the essence of education's subjects: human persons.

Given the multi-faceted, value-laden nature of education and educational institutions, there should be a robust effort on the part of researchers and policymakers to harmonize empirical research with the vast wealth of moral knowledge of the scholarly disciplines within the humanities. Atkin remarks on the significance of integrating the humanist and scientific perspectives:

> [M]oral and value questions will always be at the core of educational decision making. The heart of the matter centers on what students *should* be learning and doing. Education research is about past, present, and future. The advancement of the public interest cannot be based solely on traditional conceptions of science alone… Both scientific and humanistic perspectives have a bearing on many of the issues that face those responsible for the education of children. The task of a scholarly community intent on increasing its own relevance may be to learn how to utilize both of these ways of knowing in a manner that capitalizes on the strengths of each perspective in the service of improving what goes on in schools (pp. 70, 84; italics original).

Without other modes of human understanding to adjoin the experimental and scientific, we are not equipped to deal with the contextualized moral relationships incumbent in educating human beings. The challenge is getting policymakers and policy participants thinking down this path.

A focus on human values can be a taboo for many policymakers: they frequently tend to be more comfortable with quantifiable data to inform their proposals. Yet it is critical to remember that, in some shape or form, ideas and values play a significant role in research and policy, even if they go ignored or devalued. Stone explores just how closely values and ideas are wedded with policy, going as far as affirming that "the essence of policy making" is the "struggle of ideas" (p. 11). She continues:

> Ideas are the medium of exchange and a mode of influence even more powerful than money and votes and guns. Shared meanings motivate people to action and meld individual striving into collective action. Ideas are at the center of all political conflict… Political fights are conducted with money, with rules, with votes, and with favors, to be sure, but they are conducted above all with words and ideas (pp. 11, 34).

Ideas alone cannot guide policy; they need to be transformed into directives, rules, guidelines, etc. However, the practical world of policy should not be divorced from the conceptual and moral world of ideas and values, as the latter should inform and enrich the former. Educational researchers should strive for some genuine deliberation on how these two worlds can come together to best serve the greater purpose of improving policy in education and schools.

In the next section, I want to examine how the empirically based, overly technical path that we are on, in virtually every realm and on virtually every level of education, leads to disastrous implications for the comprehensive and holistic education

of human beings. I now want to look outside of the "relevant research" and turn to the wisdom of Mary Shelley to inform how we should, and should not, think about education in our time.

Frankenstein: Why the Humanities Matter

Mary Shelley was not an educational researcher or policymaker. Nevertheless, as a nineteenth century romantic writer, she offers what I believe to be the most provocative and imaginative case for the humanities in education. Generally speaking, Shelley helps us better understand education when it is conceived as merely a means for a narrow functional end. More specifically, her gothic tale gives us a good idea about what *not* to do in implementing educational policy, especially in the areas of science and science education. Shelley ponders many questions germane to our current discussion: What is education for? What happens when ethical questions are separated from scientific and technical ones? Taking readers' imaginations to the absolute brink with her provocative prose and eerie depictions, Shelley dramatizes the questions that speak to the dangers and purposes of education.

Most of us are familiar with the story of *Frankenstein*, but two things need to be said about the book before I move on. First, readers should remember that the character Frankenstein is not the monster in the novel. The monster has no name; he is the invention of Victor Frankenstein, the human scientist. Second, Victor Frankenstein has been popularized through movies as a "mad scientist" who irresponsibly uses science to do God's work of creating life. But rarely do we inquire into what made this scientist mad or why he was so irresponsible. I believe we need to look at the scientist's education to do so. Therefore, this section explores the inadequate education of Victor Frankenstein.

Shelley devises two very different educations: one for Victor and another for Victor's scientific invention, the Creature. While the Creature's education is also insufficient (McWhir 1990), I focus on Victor's education because it is the direction that education is increasingly taking now, the direction of narrow technical training. Victor attended some of the finest European institutions, where he studied the sciences, mainly chemistry, anatomy, and physiology. Victor always had "a fervent longing to penetrate the secrets of nature," desiring to break away from tradition and the old ways of doing science (p. 41). For Victor, areas of study outside of science were dismissed as irrelevant or altogether ignored in his education. Victor was predominantly focused on what works and was never really challenged to contemplate the broader moral questions and ideas concerning value and meaning. His education did not afford him enough exposure to philosophy, ethics, literature, or the arts to balance and complement the training he received in the sciences. Practical and technical, Victor's education was overwhelmingly about how to bestow "animation upon lifeless matter" (p. 53). And when he cashed-in on his education and began to invent life, careful reasoning and deliberation on the possible unintended and dangerous consequences of science could not be drawn on, only an obsession with the functional and practical questions of *how* and *what works*.

The pivotal scene in *Frankenstein* is when the Creature first opens his eyes in the laboratory and is immediately misjudged by Victor as a threat, as a demonic other. Seeing his invention as an ugly wretch, Victor is disgusted, panics, and flees for no good reason, forsaking and marginalizing his creation with a superficial frail reaction. The Creature had only been living for seconds and had done nothing wrong; he was just not pleasant to look at. Frankenstein's reaction was unscientific and irresponsible because his education never allowed him to respond as a well-rounded educated human person should: with an open mind and welcoming heart.

Shelley's story should not be viewed as an anti-science tale. The book is much more nuanced, presenting an argument for an education broad enough to bring the powers of knowledge, science, and technology under human control. Yes, Frankenstein infused life into an inanimate body – but what was it that turned this life into a monster? Readers should not blame science for the tragic result of Victor's work, which is an uncontrollable monster wreaking havoc and terror by murdering innocents. *Science alone does not invent rampaging monsters; uneducated humans who lack understanding do*. Responsibility, then, should be placed on the overly technical education of Dr. Frankenstein, which closely resembles the procedural specialists of our time, trained in dismissing the social, political, and moral dimensions of their work.

As we learn from Shelley, the monster was at first innocent, even yearning to be loved by humanity. But Victor never knew this until it was too late, because his education was too functional: it insufficiently prepared him to cope with his creation and ill-prepared him to relate with the Creature humanely and intelligently. Dr. Frankenstein created a deformed creature, and nothing more. Victor's initial desire for scientific discovery, coupled with his training, resulted in a hubristic failure to take responsibility for the monster he invented. It was human culture (the Creature was rejected by other human beings in the story), coupled with miseducation and misunderstanding, that transformed the Creature into a murdering monster.

Monsters in Training

Education is essential because, as Shelley teaches us, we should not run away from our creations, problems, and obligations like Victor Frankenstein did. Only through a comprehensive education that involves literature, philosophy, ethics, the classics, and art can we learn how to not be servile to these technological and scientific monsters of our making. "We must educate our scientists," writes philosopher-scientist Bernard Rollin (1995), "so as to assure ourselves that the moral and social implications of what scientists do are as much a part of their mind-set as are the technical" (p. 32). In a similar vein, I argue that science educators should teach and learn for a similar state of mind. Given the preeminent role of the sciences and the science-related fields in today's most popular and well-funded reform areas in education, an ethical–philosophical disposition concerned with larger moral and social consequences of science is perhaps needed more than ever. For example, through Race to

the Top, the Administration expanded the role of the sciences in schools and universities by greatly extending support and funding for an STEM (Science, Technology, Engineering, and Mathematics) education. As follows, many states have put STEM education reform plans at the top of their lists and have made these fields a top priority for areas of new policy implementation.

A healthy critical reflection is possible within the constraints of the science education community, but it might be difficult. As Rollin suggests, "Total immersion in an area tends to be inimical to reflection on that area" (p. 11). A moral-social reflective mind-set requires an open-mindedness to other disciplines that have critical reflection at their core, such as philosophy and literature. Do current policies a curricula in science education engender such reflection? Is an STEM education today training a culture of technicians, like Victor Frankenstein, predominantly concerned with the functional *how*, neglecting their moral and social obligations to ask *why*?

While universities, schools, think-tanks, and research organizations may be getting more stimulus money from the current Administration, it is education that could be suffering a devastating blow. There is a large, unfortunate tendency to conflate education and labor-force training. "Folks need a college degree." Then, the very next line of a speech that President Obama gave at the University of Texas, he said, "They need workforce training" (White House 2010a). There is an important difference, however, between *education* and *training*. As Rollin (1995) writes, "We do not educate scientists or physicians to be virtuous citizens, we train them in a technocratic way" (p. 31). Training is a very particular preparation and instruction. It is more mechanical, requires less critical reflection, and is more about doing than knowing and understanding, just like Victor Frankenstein's education. While useful for learning how to perform a specific skill-set – like how to re-animate a patchwork of corpses – training, when it stands alone, is adverse to education, which includes learning broadly about oneself, others, and the world. Education involves a cultivation of the faculties of reason, reflection, and imagination. Certainly, the workforce training that is so zealously and routinely endorsed in the leading reform areas cannot produce the open-minded, warm-hearted human beings who, unlike Victor Frankenstein, would try to understand ugly creatures. In a time when education is misconstrued by the consenting majority as merely job training, how many monster-inventors are being manufactured and trained in the laboratories that are present-day schools and universities? We need more comprehensive *education* policies and curricular reforms so this generation of STEMs do not turn out to be the Victor Frankensteins of our time.

Education should aim at cultivating the best person possible, in every case, regardless of who is the President: we all need to be "the best version of ourselves." No school policy could ever capture such a broad aim. The point is that, in the hustle and bustle of making policy, we should never lose sight of the transformative and awesome powers of education: It can fundamentally change individuals, communities, and societies. Yet to continue on the narrow path of training we are going down is the path to inventing havoc-wreaking monsters.

Concluding Remarks: Moving Forward with Love

For those concerned about the comprehensive and holistic education of human persons, educational research, policy, and practice should promote broader understanding of the purposes of education – and this may or may not involve social efficiency or world economic supremacy. Education involves something much broader, something deeper and more significant. Many timeless works of humanities teach us about the role of love in human lives. Love – that most fundamental yet elusive of ideals – needs to assume a role in our discussions of the purposes and aims of education. Youth will not learn to love anything or anyone when they are *trained* to believe that learning is a mere instrument to competiveness, to monetary gain, to business and consumptive practices.

To end, educational reforms might accelerate the economy, improve earnings, and help America regain its global competitiveness. New polices in education might make us better employees, skilled technicians, and more efficient information seekers and consumers. But all the while, we risk becoming worse human beings, more materialistic, self-interested, and indifferent. We risk becoming inferior teachers and learners, bad artists, worse thinkers and writers. But most troubling, we risk that Generation R will never learn to love misunderstood, deformed creatures.

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