

feel irrelevant for me...I haven't found the answer to my very intimate private questions and I feel I need to put it into words; maybe it will make it more understandable or bearable for me...I find myself writing more and more poetry, which really surprises me deeply, and I feel that probably *the language of my grief is poetry*...I need something that for me is more refined and more delicate, and this is the language of poetry.

To really understand the story of Icarus, the boy who fell from the sky, first read the Greek myth. Then see Bruegel's painting "Landscape with the Fall of Icarus" at the Musée des Beaux Arts in Brussels. Then read W.H. Auden's poem about the painting. It begins, "About suffering they were never wrong / the Old Masters": *mythology, poetry, and art*.

Or you can lie outdoors on your back with a child on a clear, dark, night. Bring along the languages of *mythology* and *astronomy*. Talk about Orion, and the Bull and Cassiopeia. Find the Big Dipper. Long after you're gone, the once-child will look heavenward to find the North Star.

And then there is love, a rich experience in its own right. But bring along the languages of *poetry* and *music* and watch what happens.

So, if life is just a long chain of experiences, many of us are simply doomed to lumber dimly past them; others reach into their quiver of languages and see those same experiences through a kaleidoscope.

*Addressing Inequality:
Education for the Information Age*

Joseph E. Stiglitz, '64

TODAY'S ECONOMY IS markedly different from that when I was a student at Amherst, a little over fifty years ago. Four interrelated changes stand out: we've moved from a manufacturing economy to an economy based on services, knowledge, and innovation; it is a more globalized economy, with movement of people, goods, services, capital, and knowledge across borders beyond anything that we could have imagined; it is a more dynamic economy, with people frequently changing jobs and homes; and it is a far more unequal society. We've become more divided and more polarized, with income disparities that are far greater than they were in the period after World War II.

I became an economist largely because I was concerned about the poverty and inequality I saw both at home and abroad. I thought that greater understanding of the causes of inequality—that kind of understanding that can only come from deep research—would enable us to address this issue. I had grown up in Gary, Indiana, a city on the southern shore of Lake Michigan that exemplifies both the economic history of the country and the changes I've just described. As I was growing up, I couldn't imagine the process of deindustrialization that would afflict Gary and other steel towns like it; and even more important than deindustrialization were the productivity improvements, the result of advances in science and management, that allowed the

same amount of steel to be produced with one sixth the labor force. When I was growing up, I was horrified by the levels of inequality and racial discrimination; I saw firsthand the consequences of labor strife and the failure of government to manage the business cycle, the large fluctuations in output that afflicted the country every few years, accompanied by layoffs. I saw the result in the lives of my classmates, as their families struggled to make ends meet, in a proudly rich country without an adequate system of social protection. But I could not have realized that, in some sense, this was the golden age of capitalism: as I studied inequality, it grew worse and worse. Access to new data and the enhanced ability to process large amounts of data showed that the U.S. was the advanced country with the highest level of inequality, and among the countries with the lowest level of opportunity. At least in a statistical sense, the notion of the American dream was a myth. The life prospects of a young American were more dependent on the income and education of his parents than in almost any other advanced country.

The plight of those without a college education has become particularly bleak. Life expectancies are in decline, income has not just been stagnant, but in decline—with no prospect of matters getting better. The fact that those with education have done so much better than those without education shines a strong light on the importance of education.

The other changes noted above reinforce the importance of education. Globalization has made the global marketplace more competitive, and smart, well-educated management combined with a well-educated and healthy labor force is necessary for success in this global competition. It should be obvious that as we move from manufacturing to a knowledge and innovation economy, the importance of education is again enhanced.

As individuals move more frequently from job to job (whether with the same or different employers) they will have to draw upon new and different skills and knowledge, and here again education is critical. There is evidence that those who are more educated are better able to make these transitions. When they lose a job, they will remain unemployed for a shorter period of time, and when they eventually get a new job, it will be higher paying.

Of course, the nature of the education system that makes for success in this new economy is different from that of the last century. This is partially a continuation of changes already in place as the economy moved from agriculture to manufacturing. Manufacturing required more and different education than that required by traditional agriculture. Success in manufacturing required certain “soft skills,” such as showing up on time, and listening carefully to and following certain commands. In many areas, it required the ability to work together in teams. (In fact, some claim that it was precisely because manufacturers needed a well-trained urban labor force that there was such widespread support for public education.)

There are at least three critical changes in our education system as we move to a post-industrial age. First, the fact that the problems individuals confront will change drastically over a given individual's life—even if he doesn't change jobs, and even more so if he does—means that there has to be lifelong learning. Secondly, the internet means that individuals have at their disposal, at their fingertips, more information than was accessible in the best of libraries fifty years ago. What matters today is the ability to evaluate and process information. Metaphorically, education used to be thought of as stuffing young minds with as much information as one could in a few short years, hoping that it would be relevant as they reached middle age some decades later. We know that the information that we give them today will likely be irrelevant in the future, but fortunately, that is not what is at issue. What matters today is their ability to creatively and judiciously process the massive amounts of information and knowledge that are available.

Thirdly, especially in an innovative and innovation economy, what matters is creative thinking. We know well how to teach basic skills. We know there is no magic formula for teaching creativity. Perhaps the best way to do so is through apprenticeship, seeing the demonstration of creativity across a wide range of areas. We know too that a major source of creativity arises in the confrontation between different ideas—ideas from different disciplines or from different countries. Economists would say that there is much gain from intellectual arbitrage, taking ideas from one area and applying them to

another; and that this arbitrage itself is a source of creativity.

All of these rationales for a greater emphasis on education are also reasons for a greater emphasis on liberal arts education, especially for those who will be leaders in the future. The world will be facing new and seemingly intractable problems, different from those we have ever faced before. There is no textbook that tells us how to address the problem of global warming, or how we should respond to the potential and threats of artificial intelligence, but, in one way or another, we will have to face these and a myriad of other problems. The best that we can do is to bring to bear all the relevant facts, with reasoning, deliberation, and creativity, hoping to come up with solutions. These are "systems" problems of enormous complexity, and hopefully, our education will have provided those attacking these problems with the creativity to come up with new approaches, and the technical skills and nuanced reasoning to ascertain the vast changes that alternative policies might bring about in our complex interdependent systems.

We too often forget the most important part of education occurs after individuals leave school. Formal schooling occupies only a short period of our lives. More important, in many senses, is what happens afterwards. But the formal part of education is pivotal: for it is there where, if our schools are doing their jobs, we learn how to learn, we acquire and cultivate our love of knowledge, and we come to appreciate disciplined thinking.

Just as our educational system as a whole will have to change in response to these seismic changes in our economy and in technology, so too will liberal arts education. In the nineteenth and earlier centuries, every well-educated person would know Greek, Latin, and the classics. By the mid-twentieth century, liberal arts education had changed dramatically, but at least at Amherst, there was a core curriculum, which reflected a common understanding of a shared knowledge about science, the social sciences, and humanities that was prerequisite to being well-educated. While in the middle of the twentieth century many liberal arts colleges still had required courses called Western Civilization, Amherst's course was even then slightly more global, as we discussed the encounters of different civilizations with each other.

What that core of knowledge should be in the twenty-first century is a matter still in debate; but surely it should include a more globalized view of the world, a better understanding of our planetary boundaries, and a greater awareness of technology and how changes in technology may be affecting us and our civilization. I would also argue that it should include a better understanding of where we as a society are going and where we have come from—an understanding of our economic, political, and social systems and those elsewhere in the world, and what the possibilities are of constructing alternatives.

Still, for all of these changes, the humanist core of a liberal arts education remains unchanged. It is the outgrowth of the Enlightenment, the view that through disciplined reasoning we can come to a better understanding of our world, of our society, and of ourselves. A belief too that we, as a society, through reasoning and deliberation, can improve our social institutions, helping them to ensure that each individual within our society lives up to its potential, and that our society as a whole lives up to what we as a society truly value. There can be social innovations, just as there can be technological innovations. These were shared beliefs when we were students at Amherst. We studied the spread of the Enlightenment ideas and ideals around the world. We saw backsliding in dark periods, like the fascism surrounding World War II, but that was history. In the optimism of the early sixties, as we fought for the civil rights for all Americans, we were pushing forward a new chapter in the spread of the Enlightenment. It was inconceivable to me that we would be where we are today. Seemingly, we have to relitigate the Enlightenment every day. Large swaths of Americans cast aspersions on science, and reportedly, a majority of one of America's two major parties even questions the value of universities—this in a world in which so much of the world's progress, and America's standing in the world, depends on the advances of science and technology. If these views prevail—which I hope and pray that they don't—we would see stagnation and a decline in our position in the world and in our standard of living. There are other countries that still embrace the Enlightenment ideals, countries that are today beginning to outpace the U.S. in the proportion of young and innovative firms.

EDUCATION AND THE CREATION OF A MORE EQUAL SOCIETY

The previous paragraphs have explained the pivotal role of education in our modern society and how changes in technology and the economy have made education more important, but also made it imperative that there be changes in our education system.

The country has, in many respects, done well in adapting its education system. A modern economy requires more individuals with higher levels of education, more with university degrees. In the years after World War II, there was a vast expansion of our system of higher education. Indeed, the GI bill played a critical role in the country's transition from agriculture to manufacturing, providing to those who had fought in the war (which was essentially all young men and many women) as much education at the best schools that they qualified for. Under President Eisenhower, we upgraded our science education and extended our systems of higher education.

But somehow, between those years when we were at Amherst and today, the country lost its way in this and other areas. It has not even done well in providing the basic skills necessary for success in the twentieth century. It has done poorly on average—with American students performing more poorly on standardized tests than those in many other countries. Indeed the difference between students in one of the best performing states in the U.S., Massachusetts, and students from Shanghai, nominally at the same grade level, amounts to two full years of schooling when looking at the mathematics scores.⁴

But our school systems have served those at the bottom particularly poorly. Inequalities in education opportunity have contributed greatly to in-

equalities in income and in economic opportunity.⁵ These inequalities have been growing. It is part of the reason that, as we noted earlier, the U.S. is the advanced country with the highest level of inequality and among the lowest levels of equality of opportunity.

But we have also not kept up with university education, especially when it comes to completing a four-year higher education degree. Other countries have recognized the critical role that an educated labor force has in economic success and have done more to ensure access for all.

One of the reasons for these dire outcomes is that our elementary and secondary education systems are local, and America is afflicted with increasing economic segregation. Moreover, our college and university education systems are fee based, with fees that are sufficiently high that a higher education is out of reach of many, especially in the "lower middle class." Even though America's selective colleges (like Amherst) are enormously generous, with need-blind admissions, providing full scholarships for all those who need them, less than 10 percent of the students come from the bottom half of the country: their local education system simply hasn't provided them with the skills needed to gain acceptance.

It would not be difficult to improve the overall quality of education and increase equality of opportunity. Put simply, we have to spend more. Sixty years ago, our public schools—and we—were the beneficiaries of a system of pervasive discrimination. There were very limited opportunities for women, so schools could hire highly qualified teachers and pay them a fraction of what similarly qualified men would be paid. But we can't do that anymore. Surely, if we care for our children, shouldn't we want them to have good teachers,

5 The richest 25 percent of school districts spend 15.6 percent more funds than the poorest 25 percent, according to the Department of Education. See <https://www.ed.gov/news/media-advisories/secretary-duncan-urban-league-president-morial-spotlight-states-where-education-funding-shortchanges-low-income-minority-students>. A study by Jackson, Johnson and Persico finds that every 10 percent increase in per pupil spending on their twelve years of education leads to 7 percent higher wages and a 3.2 percent decrease in annual incidence of poverty. See Jackson, C. Kirabo, Johnson, Rucker C., and Claudia Persico, "The Effects of School Spending on Educational and Economic Outcomes: Evidence from School Finance Reforms," *Quarterly Journal of Economics*, 131(1):157-218.

4 Source: OECD PISA 2012 Country Note for the United States, accessible at <https://www.oecd.org/unitedstates/PISA-2012-results-US.pdf>.

people who are dedicated to education, but choosing education as a well-paid profession? Higher pay would lead to greater respect, and the overall education experience would be improved.

Higher education too needs to be made affordable to everyone—without asking poor and middle income students to take on an enormous burden of debt. There are many ways of doing this—government tuition subsidies, more scholarships, or an income contingent student loan program, of the kind that has worked so successfully in Australia.

MORE THAN EDUCATION

A lack of quality education is contributing greatly to the country's problems. Those without an adequate education who have lost their jobs as the country has deindustrialized have found it difficult to find jobs elsewhere. Too many have become trapped in communities without jobs and without hope. It is this despair that helps explain in part the decline in life expectancy. It is what has given rise to the enormous increase in deaths from suicide, drug overdose, and alcoholism, what Anne Case and Angus Deaton have called "deaths of despair."⁶

Changes in education, though, may be easy compared to the other more fundamental changes that the country has to make, if we are to live up to the charge that our class received from John F. Kennedy, if our economy is to continue to be dynamic, and if there is to be even a modicum of social and economic justice. They are necessary but not sufficient. One of the reasons that education has been central to recent public policy discussions is that it is pivotal; but another reason is that it is relatively easy, requiring fewer of the deeper reforms in our economic and social systems.

We sometimes forget that markets don't exist in a vacuum; they have to be structured. They are structured by our laws and regulations. And the way our laws and regulations have structured our markets has led both to more

inequality and to lower growth. It has resulted in firms being more short term in their thinking; in markets that are less competitive, and thus less dynamic; and in workers' bargaining power being eviscerated.

One of the big insights of modern economics is that equality and growth are *complementary*: more equal societies perform better. This was the central message of my book *The Price of Inequality*. We are paying a high price for our high level of inequality—it weakens our democracy, it hurts our economy, and it divides our society. This view has since become a mainstream view, with the International Monetary Fund making it central to the policy advice which they dispense around the world.

In this perspective, inequality is not just a moral issue—though it is that, especially when it comes to the extremes of inequality that we have been experiencing. It is also an economic and political issue.

CONCLUDING COMMENTS

We were lucky to have attended Amherst when we did, a moment of optimism and faith in the liberal arts education and in Enlightenment ideals. We were privileged, and I sense that many of us felt that, and felt that with privilege came responsibility: to make sure that others could enjoy the kind of education from which we had benefitted so much, and to contribute to a better world, each in our own way. The more than half century since has been marked by rapid economic growth—GDP today is five and a half times greater than what it was in 1960 when we entered Amherst, and GDP per capita is three times more.⁷ But the country in many ways does not feel as optimistic, as happy, as well off. Almost surely, an important part of the reason for this is that we have allowed a great divide to open up. These are wounds that now have to be healed.

⁶ See Anne Case and Sir Angus Deaton, 2017, "Mortality and Morbidity in the 21st century," *Brookings Papers on Economic Activity*, Spring 2017; also Anne Case and Sir Angus Deaton, 2015, "Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century," *PNAS* 112(49): 15078-15083

⁷ Source: FRED Economic data, Federal Reserve Bank of St. Louis, accessible at <https://fred.stlouisfed.org/series/GDPC1#0> and <https://fred.stlouisfed.org/series/A939RX0Q048SBEA#0>.