Human Capital Development: A Progressive Call to Action

A Corollary to

The Requirements of Justice Arising from the 'Digital Divide'

by:

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Abstract

The basic Digital Divide problem is not technical, but structural. A progressive solution would entail re-examining and reforming certain basic tenets of the role of mass education in western capitalist society. This requires an enlightened and cogent critique of deeply entrenched societal assumptions and powerful political/financial interests. A new grassroots reform movement is needed, based on real democracy run by the citizens. A progressive call to action would require a change of priorities commensurate with the opportunities presented by 21st century information society, rather than one designed for the constraints of the 19th century industrial society. This paper recommends six considerations that must be part of such a call to action.

Dedication

To my wife Cheryl, who tolerated my absences and supported my obsession with this subject for over two decades.

To my children Jessica, Jason, and Julian, who provide me with the motivation to contribute to an improved world.

To my parents, Blake and Ruth White, who instilled a love for education in my young mind, even when the power of the legal apartheid of 1960s North Carolina seemed insurmountable.

Acknowledgments

I sincerely thank Dr. Linda Paulson of Stanford University for asking me a very basic, yet profound, question.

I also owe deep gratitude to Professor Robert McGinn and to Dr. Ernle W.D. Young, who provided me with the foundation in ethical principles as they relate to science and technology.

About the Author

Blake White founded the Strategic Technology Institute (STI) as an outlet to investigate the business and public policy issues raised by science and engineering. STI was originally founded as Strategic Technologies and then Strategic Systems Inc. in San Francisco in 1985.

White's 30 years in the technology industry includes positions as: Vice President & General Manager of Ascent Media Consulting Services, in which he leads Ascent's offerings in strategic, business and technology consulting services to the global electronic media industry, with clients in the United States, England, France, Singapore, Vietnam, Dubai, Russia, Turkey, and South Africa; Vice President of Strategic Services at National TeleConsultants (NTC); and he was Practice Leader, Digital Media Management, for PriceWaterhouseCoopers LLC.

He also held various management positions in the Silicon Valley computer industry, including: Vice President of Major Accounts at online e-book service bureau PublishOne (a business unit of InterTrust Technologies), Vice President & General Manager of media transport company WAM!NET Entertainment, Director of Entertainment Industry Professional Services, Industry Marketing, and Business Development at Silicon Graphics (SGI). White was also Director of Corporate Development at Apple Computer, and he held several product management positions in multiplatform network integration technologies at Apple, Digital Equipment Corporation (DEC), and Hewlett-Packard (HP). White was also an early participant in the interactive TV industry, serving as Executive Director for Content Development at US West Multimedia. He began his career in Procter & Gamble's Management Systems Division in 1978.

White is a frequent speaker at industry conferences that have included: the National Association of Broadcasters, the International Broadcasting Conference, the Society of Motion Picture & Television Engineers, Digital Hollywood, Cannes Film Festival, and Broadcast South Africa. He is the author of: *The Technology Assessment Process: A Strategic Framework for Managing Technical Innovation*, published by Greenwood Press in 1988, the PricewaterhouseCoopers 2003 publication -- *A New Era for Content: Protection, Potential, and Profit in the Digital World* -- and the *SMPTE Motion Imaging Journal* article (April 2004) by the same name, and he was co-author of *Digital Asset Management: Process Over Product*, published in *Broadcast Engineering* (July 2004). White's work on the Digital Divide has been published in academic journals including Stanford's *Tangents* and AGLSP's *Confluence*.[1] He also wrote several articles for the *Journal of the National Technical Association* in the 1980s and has lectured nationally for over two decades on topics that ranged from technical literacy, to space industrialization, energy alternatives, social implications of new technologies, information privacy, the history of science and technology, and ethical debates

White is trained as an engineer, holds BSIE, MBA, and MLA degrees from North Carolina State University, Xavier University (Ohio), and Stanford University, respectively. His professional memberships have included: The Society of Motion Picture & Television Engineers (SMPTE), the Hollywood Post Alliance (HPA), the Association for Computing Machinery (ACM), and the Institute of Industrial Engineers (IIE). Community activities have included: Board Member of the National Technical Association, the National Black MBA Association, the Bay Area 100 Black Men, the Cincinnati Environmental Advisory Council, and the Cabarrus County Chapter of the North Carolina Human Relations Commission.

[1] The Association of Graduate Liberal Studies Programs.

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"To give a man his freedom and to leave him in wretchedness and ignominy is nothing less than to prepare a future chief for a revolt of the slaves."

-- Alexis de Tocqueville

Introduction

This paper is the result of a challenge by a respected colleague who asked, "What is the solution to the problem you identified in your thesis and how do we get started?" It is a supplement to the Stanford MLA thesis of 2006 entitled, *The Requirements of Justice Arising from the 'Digital Divide'* and the Strategic Technology Institute publication by the same name. Though written to complement the previous paper, it can be read independently.[2] The first research project sought to identify the 'real' Digital Divide problem.[I] The 'Digital Divide' is a political euphemism used to describe the technology gap that falls along the lines of race and class.[II]

The paper's thesis was that distributive compensatory justice in the digital era entails, not just meaningful access to the new digital infrastructure, but 'human capital development' that would allow for an equal opportunity for all to fully participate in economic, educational, and political life (the inequities of which continue to be exacerbated by new generations of technology). Specifically, the paper argued that the Digital Divide is not digital. The discussion of computers and the Internet is a smokescreen for the real systemic underlying structural issues of class, race, advantage, and disadvantage. To the degree that human capital development in the form of economic opportunity, educational attainment, and participatory democracy are constrained to an elite few, this is a social problem rather than a technical one. So, Anthony Wilhelm's contention is correct. The great challenge of the twenty-first-century 'digital divide' is not a technological problem, but rather a social one, where the global society must come to terms with our diversity (Wilhelm 125). It is about human capital development, rather than technology acquisition and Internet access, per se. Appendix 1 provides additional detail regarding the argument and its foundations, for those who may not have read the original thesis. Appendix 2 discusses how the economic gap continues to widen, even though the gap between those with and without access to computers is closing.

What is the solution to the problem identified in the earlier thesis and how do we get started? On its surface, this question is daunting in its implications. Since the basic Digital Divide problem is not technical, but structural; a progressive solution would entail re-examining and reforming certain basic tenets of the role of mass education in western capitalist society. This requires an enlightened and cogent critique of deeply entrenched societal assumptions and powerful political/financial interests. It also involves confronting those interests with more than sloganeering; a new grassroots reform movement is needed, based on real democracy run by the citizens, not one that treats the wealthy elite and corporations as inviolate and immortal persons. A progressive call to action would require a change of priorities commensurate with the opportunities presented by 21st century information society, rather than one designed for the

[2] *Note to the Reader* – This "Call to Action" is written in such a manner that it stands alone. One need not have read the original *"Requirements of Justice"* paper. Much of the underlying research to support this paper's arguments is included in the appendices and footnotes for completeness sake. However, for those readers who are familiar with the thesis and substantiating foundation laid out in the previous paper, some of the supporting material will seem, at best, to be a review, and, at worst, to be redundant. I apologize for this inevitability.

constraints of the 19th century industrial society. Some of those re-evaluations involve a six-point plan:

1. Moving from short-term individual benefits of the wealthy and powerful conservative few to long-term social progress of the populist many as a fundamental driver of public goods and services.

2. Rejecting divisive "zero-sum" thinking, in favor of "win-win" human capital development, in accordance with international human rights standards.

3. Applying a modified form of Utilitarian ethical analysis to recognize the full and actual costs of ignorance and selfishness.

4. Applying a Rawlsian approach to educational and economic solutions that are relevant to their target audience, while insisting on personal responsibility as part of the solution when societal recompense is provided.

5. Dramatically reforming universal education for children and adults, commensurate with the flexible needs of a constantly changing global society.

6. Integrating computer-based information systems as tools to leverage human power, reach, and organization, rather than blindly applying it to social problems

Short-Term Individualism of 'Movement Conservatism' vs. Long-Term Social Progress

Sixty years ago, George Orwell wrote a scathing attack on the tendency of modern societies to erode personal rights and privacy of the masses in favor of the rights of a small tyrannical elite in his prophetic novel, *Nineteen Eighty-Four*. His totalitarian world of Oceania drew a striking resemblance to his world of 1948 and our world of 2008.

The prevailing aristocracy of Oceana was not just one of "old money" or family ties; rather, as in America today, it is one made up of global corporate oligarchies, technocrats, trade associations, money managers, and media conglomerates. The population of Orwell's Oceania never picked Big Brother as a leader. Indeed, he did not even exist, yet almost everyone loved and obeyed him. In Oceania, individual ignorance was strength. To 'The Party,' reality is not external; "Not in the individual mind, which can make mistakes, and in any case soon perishes; only in the mind of 'The Party,' which is collective and immortal," as the interrogator O'Brien insists. Too often, what we are told is what we believe. It is this blind trust that makes us vulnerable to manipulation. Thought control and media blitz are dangerous potentials in an information age. Awareness and a constant struggle for free thought and truly democratic institutions must be waged. If we are not vigilant, uncritical thought can become our new chains, the mass media and high technology's isolationist, paperless, faceless interactions our new overseers, and the globally present power structure our master.

The reason for this sidebar on Orwell, propaganda, uncritical thinking, and the power of 'The Party' is to draw a distinct parallel with our modern 'democratic' system of government and its 'handlers' – the highly undemocratic capitalistic moneyed elite, many of whom follow the political tenets of 'movement conservatism,' who have no allegiances to nations or people and who are aided by the inalienable rights of immortal corporations who can move money around the world at the speed of light. It is a network of people and institutions that extends far beyond what is normally considered political life. Movement conservatism includes media organizations, think tanks, publishing houses, and a very influential wing of the Republican Party, notes economist Paul Krugman (10). "Because movement conservatism is ultimately about rolling back policies that hurt a narrow, wealthy elite, it's fundamentally undemocratic," Krugman explains (11). All of them stand to benefit from increased inequality, an end to progressive taxation, and a rollback of the welfare state (Krugman 10).

This group espouses the gospel of free enterprise and turns antigovernment ideology into conventional wisdom (Krugman 32-3). 'Populist' is considered a negative, but 'political' is considered a positive, because the political system has been hijacked by the elite and the oligarchies. 'Democracy' has become sloganeering for the rights of corporations and wealthy individuals to do whatever they deem in their interests. Oddly, movement conservatism has been able to trick the general population to vote against populist policies that would have a direct benefit to the middle and lower classes by using wedge social issues, notably race, religion, sexual orientation, and fear as a distraction to pass antipopulist laws (Krugman 183-197). It is not democracy of the people en-masse; we are actually talking about the freedom of a class, with a minimum annual income of $1.3 million and an average income of $3.5 million and who are less than 0.1% of the population that own 7% of the country's income, to manipulate the economic, political, and (if necessary) the military system to ensure their rights as did Orwell's 'Party' (Krugman 259).

We have been warned about the dangers of such power in the hands of a few. President Woodrow Wilson talked about the corrupting effect of money on politics back in 1913, "If there are men in this country big enough to own the government of the United States, they will own it" (Krugman 249). President Franklin Roosevelt said that, "Government by organized money is as dangerous as Government by organized mob" (Krugman 60).

The corporate culture of profit, at the expense of people or social welfare, is enshrined in law. Corporate board members are legally obligated to further the fiduciary interests of corporations. If social welfare happens to benefit the profits or the public branding of the corporate image, the social betterment is acceptable. Otherwise, it is not! With each corporation acting in its own interests and the global corporate culture overall acting in its own interests, this ultimately leads to the destruction of the commons and degrades the overall social fabric. Some sectors are even more extreme, what the presumptive Democratic Candidate for the Presidency, Senator Barak Obama, calls the "absolutism of the free market." He goes on to describe it as "an ideology of no taxes, no regulation, no safety net – indeed no government beyond what is required to protect private property and provide for the national defense" (Obama 37).

This author does not intend to make this paper into an unfair criticism of corporate capitalism, since I have made a very comfortable living for 30 years working in corporations. Nor is this paper intended to be a socialist polemic. However, we need to face the reality of the system we live in and how it works for the 'haves' and does not work for the 'have nots.' We also need to call out hypocrisy and political double-speak, rather than ignore it. If American democracy depends on an educated population as a core value, then we should look for where the country spends its time, energy, and money. Obama reminds us, "If we aren't willing to pay a price for our values, if we aren't willing to make some sacrifices in order to realize them, then we should ask ourselves whether we truly believe in them at all" (68).

Because we live within a global corporate culture, we have adopted many of their guiding principles as our own. American corporate culture and its conservative movement partners are notoriously short-term focused. It seeks to maximize self interests, with little regard to the commons. Paul Krugman reminds us that, "Even among highly educated Americans, most haven't seen large income gains. The big winners, instead, have been members of a very narrow elite: the top 1 percent or less of the population" (8). It deems acceptable a five percent unemployment rate, because it needs excess capacity of workers to keep the costs of labor down. Divide and conquer is acceptable. UN Special Advisor and Columbia University economist Jeffrey Sachs points out that the forging of national commitments that foster less inequality is easiest in fairly homogeneous societies, like Scandinavia, where tax payments are "helping their own." It is hardest in societies like the United States, which are divided by race, religion, ethnicity, class, and the native-born versus immigrants. He notes that, "Even within national borders of divided societies, human beings have a hard time believing that they share responsibilities and fates with those across the income, religious, and perhaps especially, racial divide" (Sachs, *Common Wealth* 5). According to Harvard economists Alberto Alesina, Edward Glaeser, and Bruce Sacerdote, "The opponents of [income-based] redistribution have regularly used race based rhetoric to fight left-wing policies. Since minorities are highly over-represented amongst the poorest Americans, any income redistribution measures will redistribute particularly to minorities" (Krugman 179). Broadly, the higher the black percentage of a state's population, the more

conservative the state's politics seem to be and the lower its social spending per person (Krugman 180). It is no wonder that financing for the public school system is in shambles in many urban and rural parts of the country. It is just not in the interests of wealthy elites, who can afford to send their children to private schools, and where there are concentrations of blacks and Latinos with poor whites, movement conservatism is able to co-opt the poor and middle class whites to act against their own interests.

The corporate culture does a pretty good job of layering its costs on the society, while keeping its profits to itself. One hundred years ago, when the robber barons needed workers who would show up on time, take orders from the management hierarchy, work in a mechanistic fashion, and have enough ability to read and write to operate industrial machinery, it laid those training costs off on society in the form of compulsory education. The education they chose met the needs of the evolving industrial order. Unlike 100 years ago, corporations are not demanding that the U.S. educate and supply a massive set of knowledge workers to meet the needs of the new information economy. They can ship the work offshore, usually at a lower cost. They can also bring the best and brightest intellectual capabilities to the US, rather than train the ones who live here. Capital is mobile. Information is mobile. Unskilled workers are not mobile, nor are they targets of corporate investment.

According to Sachs, even the harshness of the early industrial age in England, described by Dickens and Engels, ultimately gave way to a recognition by the powerful industrial elite that the poorest parts of town could not be the dumping ground for industrial wastes without jeopardizing the rich neighborhoods as well; nor could they leave the poor to wallow in deprivation, disease, and hunger without courting crime, instability, and disease for all (Sachs, *Common Wealth* 4).

Likewise, when it comes to the modern infrastructure for human capital development, we need a paradigm shift away from exclusively individual self interest to a combination of maximization of social benefits within the context of minimizing individual harm. Obama implores the American electorate to move away form cynicism and self-centered decisions by asking the electorate to get "reengaged in the project of national renewal" and to "see their own self-interest as inextricably linked to the interests of others" (40). From a quantitative analysis perspective, we propose the optimization of two simultaneous equations (Anderson 350-352, 372-373):

- Maximax – Select the decision that maximizes the maximum payoff (do the most good for the most people).
- Minimax Regret – Minimize the maximum regret, or opportunity loss, associated with a decision (do no harm).

This is an improvement over traditional approaches that minimize harm (regret) or maximize profit (payoff), but rarely attempt to do both.

Let us examine how this approach might improve the human capital development prospects of those most in need.

Rejecting "Zero-Sum" Thinking

President John F. Kennedy warned us, "If a free society cannot help the many who are poor, it cannot save the few who are rich." Repairing the social divide for the systemic poor in the digital era, including effective compensation, damages, amends, reimbursement, or restitution, may require that 'programmatic digital-era reparations' be part of any comprehensive solution to the (often) racially influenced cycle of poverty that has been further intensified by technology.

Rather than financial transfers, these reparations in human capital development may need to take the form of broad-scale Affirmative Action programs of a generation ago; or, perhaps the post-World War II GI Bill is more palatable to the American public. For those who need an even more compelling precedent, consider Abraham Lincoln's investment in the American people and his extension of opportunity to a broader population through the Homestead Act of 1862, which, in the words of Barak Obama, was accompanied by a system of land grant colleges to instruct farmers on proper agricultural techniques and provide a liberal education that allowed them to dream beyond the confines of the farm (152). Obama continues, "Time and again,

government investment has helped pave the way for an explosion of private economic activity. And through the creation of a system of public schools and institutions of higher education, as well as programs like the GI Bill that made a college education available to millions, government has helped provide individuals the tools to adapt and innovate in a climate of constant technological change" (Obama 153).

At Princeton, John Forbes Nash laid the groundwork for the general non-cooperative theory and for cooperative bargaining theory in his 27-page 1949 PhD dissertation. If four reasonable conditions are satisfied then there is a unique solution, namely, the outcome that maximizes the product of the players' utilities[3] (Kuhn 163). The classical economic and mathematical thought before Nash was led by John von Neumann and Oskar Morgenstern. However, they had only managed to solve non-cooperative games in the case of "pure rivalries" (i.e. zero-sum). Nash turned to rivalries with mutual gain (The History of Economic Thought Website, http://cepa.newschool.edu/het/profiles/nash.htm). This moved Game Theory beyond the standard zero-sum, two-person cooperative bargaining theory of its day. For his work, Nash shared the Nobel Prize in 1994 with John C. Harsanyi and Reinhard Selten.

Likewise, there is a movement to build communities in such a way that their technologies and social institutions – their material and social structures – do not interfere with nature's inherent ability to sustain life," observes physicist Fritjof Capra. Since the network is one of the most basic patterns of organization among living things, extending the systematic understanding of life to the social domain means applying our knowledge of life's basic patterns and principles of organization, and specifically our understanding of living networks, to social reality (Capra, *Connections* 81). The new scientific understanding of life based on non-linear dynamics, or complexity theory, may one day force the public policy community to re-evaluate societal goals so that they can be more consistent with the principles of organization that nature has evolved to sustain the web of life (Capra, *Connections* xix). Make no mistake about it, in the long-run, nature rewards cooperation.

Technological change accounts for most of the workers displaced from their jobs each year (Griswold 1). At the same time, it is technology that opens the door to new economic opportunity, although it requires technology implementation in an appropriate social context that enables all members of society to compete on equal terms for those new opportunities. To break the cycle of constantly starting on the lowest rung of each technology advancement, African-Americans need a twenty-first-century updated social contract to fairly distribute the benefits of Information & Communications Technologies (referred to in international government circles as ICT) to those most negatively harmed by it. 'Fairly' in this context does not just mean 'equal.' Equal does not necessarily produce fair and relevant benefits when various sectors of society have neither equally skilled access to public infrastructure nor the ability to utilize it on an equal basis. Reparations will need to be race-sensitive, rather than race-indifferent or race-neutral.

President Lyndon Johnson explained the rationale behind the use of affirmative action to achieve equal opportunity in a 1965 speech: "You do not take a person, who for years, has been hobbled by chains and liberate him, bring him up to the starting line of a race and then say 'you are free to compete with all the others,' and still believe that you have been completely fair." This is the situation African-Americans, indeed the chronic poor of all races, face in the new era of technology-enabled global capitalism.

In an effort to be 'race-neutral,' the U.S. has become 'race-indifferent,' indeed 'race-hostile' in its avoidance of obvious inequities. Harvard's Glenn Loury describes race-indifference as, "…a disregard for the effects of a policy choice on the welfare of persons in different racial groups" (166). The country ignores the fact that programmatic educational, governmental, and business outreach efforts resulted in a tremendous quantitative rise in the educated black middle class, whose members benefited from the affirmative action programs of the 1970s and 80s in the same way as did a generation of military veterans benefited from the GI Bill. US society too often individualizes the achievements of accomplished blacks while generalizing the negatives that

[3] Nash's Equilibrium posits four reasonable requirements or axioms: (1), that any solution should be invariant under positive linear affine transformations of the utility functions, (2), that the solution should be efficient in the sense of Pareto optimality, (3), that irrelevant alternatives should not change the outcome of the solution, and (4), that bargaining problems with symmetric outcome sets should have symmetric solutions (Kuhn 163).

stigmatize the overall racial group. U.S. society forgets that, since 1980, affirmative action has contributed to a 57.2 percent increase in the number of people of color enrolling and graduating from colleges and universities. Although it is generally well-accepted that the achievements of the last two Secretaries of State, Dr. Condoleezza Rice and General Colin Powell, plus those of CEOs Kenneth Chenault of American Express and Richard Parsons of Time Warner, and NASA astronauts Guy Bluford and Dr. Mae Jemison were due in large measure to their superior individual capabilities, the society often forgets that their skills may not have been tapped by their organizations had it not been for the proactive search for qualified minority candidates inherent in 1970s affirmative action programs.

Whereas some believed that Affirmative Action programs gave manufacturing jobs or college placement slots to one group at the expense of another, Sachs suggests that the entire world, including today's lagging regions, has a reasonable hope of reaping the benefits of technological advancement.[4] "Economic development is not a zero-sum game in which the winnings of some are inevitably mirrored by the losses of others. This game is one that everybody can win" (Sachs, *Poverty* 31). Especially when it comes to educational resources, computers with video and audio capabilities combined with the global reach of the Internet make the zero-sum thinking of the Bakke case obsolete. Instead of competing for a physical seat in a law school, the law school can come to the student. Entire libraries are available online. The best lectures can be captured on video and made available 'on-demand.' Training materials can be interactive. Collaboration among students is no longer limited by space and time. ICT has the potential to democratize high-quality education, and further equalize economic and social opportunities.

Do rights recognized in the non-digital world automatically transfer to the same rights in the digital realm? When it comes to the provision of government services and the subsidization or promotion of private services over what has become a public infrastructure, the answer is yes.

In the U.S., the provision of public infrastructure, such as electricity, has been seen as a public good that should be available to all since Franklin Roosevelt's Executive Order 7037 that established the Rural Electrification Administration in 1935, the preamble of which included the following language:

> By virtue of and pursuant to the authority vested in me under the Emergency Relief Appropriation Act of 1935, approved April 8, 1935 (Public Resolution No. 11, 74th Congress), I hereby establish an agency within the Government to be known as the "Rural Electrification Administration", the head thereof to be known as the Administrator. I hereby prescribe the following duties and functions of the said Rural Electrification Administration to be exercised and performed by the Administrator thereof to be hereafter appointed to initiate, formulate, administer, and supervise a program of approved projects with respect to the generation, transmission, and distribution of electric energy in rural areas.

The current administrator of that order, the Rural Utilities Service of the Department of Agriculture, requires that all electric and telecommunications service providers adhere to Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and the Age Discrimination Act of 1975 (Anderson, C. 1). In addition, Title II Section 201 of the Civil Rights Act of 1964 requires that all persons be entitled to equal enjoyment of the public goods, services, facilities, and accommodations without discrimination on the basis of race, color, religion, or national origin (Wright 589).

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[4] Affirmative Action has been derided in the current era of neo-conservative thinking. Even liberals and the black intelligentsia go out of their way to find a more politically-correct way to refer to what the words 'affirmative' and 'action' imply. In the U.S., the phrase implied an 'active effort' to improve employment and educational opportunities for minority groups and women as a remedy to the acknowledged effects of long-standing discrimination. It consisted of policies, programs, and procedures that gave preferences to minorities and women in jobs and education, when other academic and skill-based qualifications have been met. Since Regents of the University of California v. Bakke (1978), in which the U.S. Supreme Court declared affirmative action constitutional but invalidated the use of racial quotas, and the 1997 Supreme Court refusal to hear a challenge to California's 1996 Proposition 209, which barred race- or gender-based preferences in school admissions, public hiring, and public contracting, the trend of Affirmative-Action programs has slowed and sometimes been reversed by government, educational, and business leaders.

Going beyond non-discrimination, the U.S. government sees inherent benefit to making communications infrastructure available to all and it is willing to subsidize or mandate special programs for the poor. Focusing on the universal service provisions of the 1996 Telecommunications Act, the FCC issued rules based on four goals. First, all universal service objectives established by the Act must be implemented, including those for low-income individuals, consumers in rural, insular and high cost areas, as well as for schools, libraries, and rural health care providers. Second, rates for basic service must be maintained at affordable levels. Third, affordable basic phone service must continue to be available to all users with the help of a universal service fund which will subsidize phone service for those who qualify. Fourth, the benefits of competition in the telecommunications arena must be brought to as many consumers as possible. Universal services supported by the fund includes:

- Access to a telephone network with the ability to place and receive calls,
- Access to touch tone capability,
- Single-party service,
- Access to emergency systems including, where available, 911 and Enhanced 911,
- Access to operator services,
- Access to 'interexchange' services,
- Access to directory assistance, and
- Limited long distance calling for those low-income users who qualify.

The Universal Service requirements of the Telecommunications Act of 1996 also mandated a 'Lifeline Assistance Program' to subsidize the cost of monthly telephone bills for the poor. The 'Lifeline Assistance Program' was designed to mitigate the cost of monthly phone bills of qualifying low-income consumers and must be made available by all eligible telecommunications carriers in all states. When the regulation went into effect on January 1, 1998, Lifeline participants received $5.25 in federal support. In addition, Lifeline matched state funds up to $7.00 a month. In addition to 'universal services,' Lifeline customers were allowed to set a monthly limit on the amount of money spent on long distance calling, and if the long distance bills are not paid, then only the long distance service, and not the local service, would be cut off until the long distance bill is paid (National Telecommunications and Information Administration, *The New Universal Service*).

The cumulative effect of these laws and policies is to legitimize global Information & Communications Technology, when used for the public provision and delivery of services, as a new type of public infrastructure to which all citizens have a right to access and use.

The Universal Declaration of Human Rights, originally adopted by the United Nations in 1948, also acknowledges the fundamental importance of and rights to communications and information access. It asserts that individuals have the right to seek, receive, and impart information and ideas through any media, regardless of frontiers, as a function of one's freedom of expression (Wilhelm 61). To the United Nations General Assembly, ICT is a not a luxury. Their 2002 report of the UN ICT Taskforce argued that, "Greater reliance upon this can do much to facilitate the work of governance, to promote economic opportunities and to improve education and health. ICT is not an alternative to other expenditures but is a requisite tool for development. Not only are the new technologies a key to unlocking economic growth; they impinge on and can impact virtually all aspects of development. It thus deserves priority attention even in conditions of limited infrastructure and budgets" (UN 1).

In the modern, technologically-intensive, democratic society of the United States, equal rights to access and use the public infrastructure is assured to all citizens. Title II Section 201 of the Civil Rights Act of 1964 requires that all persons be entitled to equal enjoyment of the public goods, services, facilities, and accommodations without discrimination on the basis of race, color, religion, or national origin (Wright 589). While the Civil Rights Act was meant to address public transportation, lunch counters, hotels, and theatres, the public market for goods and services, as well as the provision of government services, is increasingly based on computerized access to information available over the network infrastructure of the Internet.

In today's society, Information & Communications Technology is more than a consumer product that is subject to the economic rules of diffusion. ICT has become the de-facto foundation of the socio-economic infrastructure. Kathleen Cooper, the Under Secretary for

Economic Affairs of the Economics and Statistics Administration and Michael Gallagher, Assistant Secretary and Administrator of the National Telecommunications and Information Administration proclaimed in the foreword to their joint 2004 report, *A Nation Online: Entering the Broadband Age*:

> Now, more than ever before, high-speed connections promise to enhance our Nation's productivity and economic competitiveness, improve education, and expand health care for all Americans. High-speed networks provide the power to erase geographic, economic, and cultural gaps. With high-speed connections, American workers can find jobs; small businesses can have global markets; rural doctors can consult with specialists; and students can take classes that are taught from across the country.

Obviously, with the rapid globalization of manufacturing, the service sector, and now intellectual capital itself, and with the web of computers, online libraries, and information service providers, Information & Communications Technology has much more powerful implications to the overall economic opportunity of a society than a mere set of consumer electronics devices. ICT has become the modern infrastructure for opportunity.

In fact, under the 1996 Telecommunications Act, schools and libraries could not only procure any telecommunications service on a subsidized basis, Internet access services were specifically designated as a target of the Act. Schools and libraries could apply federally-subsidized discounts to internal networking hardware technologies that were necessary to connect school or library terminals and computers to the Internet.

Unfortunately, the human capital formation investments in training were not eligible for these discounts. Effective use of ICT is fundamentally different in its skill set requirements than providing access to lunch counters, buses, hotel rooms, restaurants, and theatres, which require no specialized training. Giving the poor the right to use ICT infrastructure, yet neglecting to establish the conditions for effective use of that infrastructure is tantamount to denying access to it. A prerequisite to compensatory justice demands that African-Americans have a moral right to human capital development appropriate for the new challenges and opportunities that Information & Communications Technologies present.

The Actual Costs of Ignorance and Selfishness

Well before the obvious educational requirements for the modern information economy, the derived moral right to equal educational opportunity was established from the moral and legal right to equal protection guaranteed by the Fourteenth Amendment. The *Brown v. Board of Education* case, decided by the Supreme Court in 1954, recognized the importance of the legal right to equal education, as noted in the words of Chief Justice Earl Warren:

> Compulsory school attendance laws and the great expenditures for education both demonstrate our recognition of the importance of education to our democratic society. It is required in the performance of our most basic public responsibilities, even service in the armed forces. It is the very foundation of good citizenship. In these days, it is doubtful that any child may reasonably be expected to succeed in life if he is denied the opportunity of an education. Such an opportunity, where the state has undertaken to provide it, is a right which must be made available to all on equal terms (Wright 531).

In an ethical context, distributive justice concerns the distribution of social benefits and burdens based on relevant respects or substantive principles of fairness (Munson 37-38). Distributive justice concerns the distribution of social benefits and burdens, and seeks to ensure that people receive that to which they are entitled. Philosophical theories of justice attempt to

resolve questions of distributive justice by providing explanations as to why distinctions are made in any unequal distribution of benefits and burdens (Munson 37-38).[5]

During the 2006 Stanford symposium focused on the presentation and defense of the *"Digital Divide"* thesis, a question from the audience resulted in a utilitarian response that put the costs and benefits of human capital development in proper perspective. The question was, "Are you suggesting some kind of massive government program with preferences for African Americans, similar to the Affirmative Action programs of the '70s?" The answer required a rather lengthy personal example, which is summarized below.

> "I was a black child raised in a two parent household in a small town in North Carolina in the transitional era of segregation-to-integration of the 1960's and early 1970s. I remember cowering under the window sill as the Ku Klux Klan burned a cross on the neighbor's lawn and shot bullets through their windows, because the father of the household was the first black employee of the local post office. Though both my parents were quite intelligent, and placed a high value on education, they nonetheless worked much of their lives as a maid and a janitor. I was an "A" student during most of my secondary school years and was active in extracurricular activities, including being the first black president of my predominantly white high school.
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> However, we were poor. In hindsight, much of the poverty that we lived through seemed normal in my neighborhood. As is typical of many black adolescent males, I hung out with close friends who ran the gamut from aspiring to depressing, upright to shady, legal to illegal, moral to immoral, and all too many who were downright street thugs. Some of the guys I grew up with are still in prison or wasting away "on the block." I was often in the wrong place at the wrong time, once even running though the night to escape a police raid on a house of a guy I didn't even know. I was just with the wrong people who knew the wrong people. At that point, my life's outlook was as predictable as the flip of a coin.
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> However, the State of North Carolina saw fit to invest in me -- Not in Central Prison in Raleigh, but at NC State University, also in Raleigh. Because I had a life threatening illness that qualified me as "partially handicapped," I was awarded a small scholarship for tuition, books, board, and a bit for living expenses. I also had a one-year scholarship from the local Rotary Club. Now mind you, the in-state tuition at NC State in 1974 was only $273 a semester (the books were the most expensive items for me), it was still more than my family could pay. In fact, my very used, high-mileage, 1964 Ford Falcon costs me $275 back then. So, tuition was like buying a car twice a year. My parents also sent me "care packages" on the Trailways bus and I worked long hours every summer cleaning up a public park while taking classes at UNC Charlotte.
>
> That small scholarship, amounting to probably no more that $5,000 over my entire four-year undergraduate experience at NC State was the best societal investment that North Carolina (or the United States for that matter) could make. Instead of spending that amount or more per year to house me in jail, or to pay me unemployment benefits, or to have me "work off the books" in the underground cash economy, North Carolina, Ohio, Colorado, and California got a tax paying, law-abiding, voting, community activist. I own a house in California and another in North Carolina, with property tax payments on both. I pay more income taxes than most people make in a year. I have helped two of my children through college, another one is on her way within the next four years. None of my children have ever been arrested, nor suspended; nor have I. I am the primary

[5] *Consequentialism* looks at the morality of actions based on a balance of good and bad consequences. It tries to maximize the balance of positive value over disvalue (or, as Beauchamp and Childress note, the least possible disvalue, if only undesirable results can be achieved). An *Act Utilitarian* looks at practices that, over time, maximize the overall welfare of society. It allows society to override some individual property and autonomy rights, if doing so maximizes everyone's interests (Beauchamp 340-348).

support of my 83-year old mother, who still lives in North Carolina in her own home. I have also put valuable products on the market while working at HP, Apple, and SGI, and other technology companies. Plus, in an era of the ugly American, I think I represent the US very well as I travel on international business.

Now, would you rather have me do these things to contribute to society or would you rather pay for me to be a drain on society? Which is the better investment for society? You can pay now or pay later, and later always costs more. You can pay to educate poor children and you can recognize the inherent structural racially-based hurdles that some of them have to overcome, or you can feel comfortable in the delusion of a conservative, free-market, racially-neutral, American society that works for all. Would you rather pay $100,000 a year to house black men in jail or $100,000 spread over four or five years of college education to turn them into productive, law-abiding, tax-paying citizens? Would you rather have them come into your homes and rob you of your precious creature comforts or prevent them for becoming threats in the first place? Do you want to pay for more police, on top of a complex home security system, or make sure that the 85% of those unemployed blacks who did not graduate from high school and the 45% unemployed who did graduate are at least employable? I ask society as a whole, would you rather pay for them or have them help pay for you?

If you want to call that Affirmative Action, doesn't it at least begin to recognize the costs that have been burdened by the recipients of a racially unjust system for far too long? It is tempting for us in a progressive San Francisco Bay Area major university to think that society is fair and that affirmative action is bad; but, then I learned from George Bush's comments to the graduating class at Yale just what the term "legacy" means to Ivy League college admissions.[6] Blacks learned what "apprentice" meant to unionized labor controlled by whites. We understand what Silicon Valley high tech companies mean by "cultural fit." So, we shouldn't delude ourselves into thinking that Affirmative Action doesn't exist and that there are not certain structures that present preferential benefits and opportunities to those who are often white, wealthy, and/or well-placed."

Let us take a look at the facts.

- According to the Bureau of Justice's 2003 statistics, 68 percent of State prison inmates did not receive a high school diploma.[7]

- In 2003 there were an estimated 650,400 State prisoners serving time for a violent offense. State prisons also held an estimated 262,000 property offenders and 250,900 drug offenders.

- At year-end 2005 there were 3,145 black male sentenced prison inmates per 100,000 black males in the United States, compared to 1,244 Hispanic male inmates per 100,000 Hispanic males and 471 white male inmates per 100,000 white males.

- The 2006 mid-year statistics listed 2,245,189 prisoners held in Federal or State prisons or in local jails, an increase of 2.8 percent from mid-year 2005, less than the average annual growth of 3.4 percent since year-end 1995.

[6] George W. Bush is unapologetic and unashamed to have been the recipient of legacy-based Affirmative Action for rich families and his "Gentleman's C" at Yale.

[7] U.S. Department of Justice · Office of Justice Programs, Bureau of Justice Statistics. http://www.ojp.usdoj.gov/bjs/prisons.htm

  - There were an estimated 497 prison inmates per 100,000 U.S. residents, up from 411 at year-end 1995.
  - The number of women under the jurisdiction of State or Federal prison authorities increased 4.8 percent from mid-year 2005, reaching 111,403 and the number of men rose 2.7 percent, totaling 1,445,115.

- In fiscal 2005 Federal, State, and local governments spent an estimated $204 billion for police protection, corrections and judicial and legal activities, a 5.5 percent increase over the previous year.
  - The Federal government spent more than $35 billion on direct expenditures for criminal and civil justice in fiscal year 2005. State governments spent over $65 billion and local governments spent over $104 billion.[8]

- Californians spend an average of $43,000 a year to support just one inmate and the state's corrections budget has nearly tripled in the past decade. Seventy percent of parolees return to prison in California -- the highest recidivism rate in the country.[9]

- By comparison, the estimate of costs for a typical Stanford undergraduate student who is unmarried and attending full-time for autumn, winter, and spring quarters of the academic year, including tuition, room and board charges, book, supply, and personal expenses is $47,000 per year, and $55,500 for graduate students.[10] At one of California's best public universities, UCLA, the 2007-2008 estimates of undergraduate costs totals $23,976 and $28,692 for graduate students.[11]

- According to the United States Department of Education, $489.4 billion is the projected expenditure for the 49.6 million students (42 percent of which are minorities and 20 percent speak a language other than English in the home) in the 97,000 public elementary and secondary schools in the 2007-08 school year. The projected average expenditure per pupil for fall enrollment is $9,969. There are also 6.1 million students enrolled in the nations 28,000 private schools. [12]

- The projected number of 2-year and 4-year college students, part time and full time, in the 2007-08 school year is 18 million. Nationally, the average price before aid for one year of full-time undergraduate education at a public 4-year institution in 2003-04 (includes tuition and fees, books and supplies, and other living expenses) was $15,100 and for graduate students it was $21,900. [13]

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[8] U.S. Department of Justice · Office of Justice Programs, Bureau of Justice Statistics. http://www.ojp.usdoj.gov/bjs/eande.htm

[9] *Koppel on Discovery*. "Breaking Point: Quick Facts." http://dsc.discovery.com/convergence/koppel/slideshows/prison-issues/prison-issues.html

[10] Stanford Financial Aid Office. http://www.stanford.edu/dept/finaid/graduate/3_2_cost.html

[11] UCLA Financial Aid Office. http://www.fao.ucla.edu/Forms/pdfs/07_08_fees.pdf

[12] US Department of Education, Institute of Education Sciences, National Center for Education Statistics. http://nces.ed.gov/fastfacts/display.asp?id=372

[13] US Department of Education, Institute of Education Sciences, National Center for Education Statistics. http://nces.ed.gov/fastfacts/display.asp?id=372

From a utilitarian perspective, our society is making very poor investments in the development of human capital.

- We are investing an average of $120,000 per public school student over a twelve year period, 26 percent of which do not graduate on time. Just looking at the current public school level of 50 million students, keeping inflation and growth rates level for the sake of estimation, we are going to spend $6 trillion over the next twelve years. Unless we improve the success rate of our school system $1.5 trillion of that investment may not result in graduates capable of the most basic requirements of the global information society.

- Of a significant portion of that 26 percent, 57% of white and 85% of blacks are unemployed. These unemployed or under-employed individuals ostensibly require some form of assistance, either in the form of temporary unemployment checks ($4.5 billion in 2006[14]), long-term welfare assistance ($20.4 billion in Federal funds in 2006[15]), private charity, or imprisonment.

- Of the 2.2 million prisoners, $264 billion dollars in educational investments did not pay off as society expected. And, we know that for the 68 percent of the prisoners who did not complete their high school education, we are paying somewhere around $64 billion dollars annually in additional support to incarcerate them.

With the $64 billion dollars used to support drop-out inmates, we could have educated all of them at the high-school level for three years or 800,000 of them at the public college level for four years. And, by educating them, perhaps we would have further reduced the risk of them violating the law and being incarcerated in the first place.

There is no justification for policies that place a priority on incarceration over education. Likewise, there is no justification for policies that make educational expenses out of reach of those who are willing to better their lot. Obama points out that, instead of grants, low-interest loans, tax-free educational savings accounts, or full deductibility of tuition and fees, Congress has been moving in the other direction. Interest rates on federally guaranteed student loans have been increasing. The sizes of grants for low-income students have not kept pace with inflation. The Justice Department's Civil Rights Division eagerly labels university scholarship and educational enrichment programs targeted at minority students as "reverse discrimination." This is happening in a society that claims to value opportunity and upward mobility as a hallmark of the economy (Obama 165, 243).

[14] Department of Labor statistics. http://workforcesecurity.doleta.gov/unemploy/hb394/hndbkrpt.asp

[15] Department of Health & Human Services, Administration for Children & Families' statistics. http://www.acf.hhs.gov/programs/ofs/data/2006/tableA_spending_2006.html

Relevance and Responsibility

The Digital Divide moral argument should not be restricted only to the distribution of computers, but it needs to be expanded to address the distribution of relevant benefits. The complexity is further shown by John Rawls' contention that a just society is not one where everyone is equal, but one in which inequalities must be demonstrated to be legitimate. In fact, computer technology may indeed be irrelevant in the lives of many of the poor. When one examines the digital divide argument, it is doubtful that computers alone will solve the fundamental, seemingly intractable, 'poverty trap,' as Jeffrey Sachs calls it (Sachs, *Strategic* 3-4).

Paraphrasing Thomas Sowell and Glenn Loury, if poor blacks in housing projects think that there is no expectation and no benefit to learning how to master the Internet, either for economic, educational, political, or social gain, then it is not surprising that they fail to see the relevance of investing their meager resources in such mastery.

In order to stop the cycle of "starting behind," blacks themselves are also morally obligated to contribute to their attainment of human rights and prepare for the inevitable advent of the next generation of technology-induced opportunities and threats by taking advantage of society's recompense. In addition to their starting position in relation to a new technology's introduction, the self-reinforcing social and institutional expectations associated with racial *stigma* (Loury 6, 168), as well as in-group assumptions about the relative value of new technologies to the lives of the systemic poor, current and former members of disadvantaged groups also play important roles in the successful adoption and exploitation of new technologies. However, as Robert McGinn stresses, "Moral rights are not absolute in an undifferentiated sense. A moral right can be binding without exception only within a finite, bounded domain. Depending on the circumstances, it may be morally permissible to override it in the name of other weighty considerations of greater magnitude" (McGinn, *Engineer's Moral Right* 224).

Although African-Americans may be owed redress, they do not have an unbounded positive right to human capital infrastructure if provision of those resources prevents their fellow citizens from attaining the basics of life; nor do they have a right to demand resources, if they do not take advantage of those resources. Therefore, the rights of stakeholders must, at a minimum be bounded by the constraints of the modern technological society and, in certain special cases, be restricted (McGinn, *Technology* 14-15).[16] According to McGinn's criteria, provision of unused infrastructure and educational assistance programs risks the following:

- Detracts resources and the best expertise away from other crucial public needs,
- Engenders a financial cost that is subsidized by the public through direct payments, infrastructure funding, and tax breaks,
- Devalues the worth of human capital development, and most importantly,
- Allows the very real threat of massive inequality to fester, which could affect long-term security.

Therefore, if society offers reparations, it would be immoral for the black community to squander those resources. In this context, the LaGrange, Georgia 'Free Internet Initiative' is an example of squandered opportunity (McFarlan 10, 24) and (Keil 8-9).[17]

[16] In cases where the aggregate unbounded rights of a pre-technical era are extended to individuals and their actions harm society or take resources away from important social priorities, McGinn builds a convincing case for restricting those rights (McGinn, *Technology* 14-15). Among the conditions for restriction are:

- If the very existence of society is called into question
- If continued social functioning is threatened
- If some natural resource vital to society is threatened
- If a seriously debilitating financial cost is imposed on society
- If some significant aesthetic, cultural, historical, or spiritual value to a people is jeopardized, or
- If some highly valued social amenity would be seriously damaged.

[17] LaGrange, Georgia (27,000 residents 60 miles southwest of Atlanta) was the first city in the world to offer free and fast Internet access to its citizens back in 2000 (McFarlan 4-7). In spite of the broad availability, the city's subsidization, use of a television instead of a personal computer (PC), local content, and training material, almost one year from its launch, only 4,137 of the 9,100 eligible households had ordered the system. Sadly, the goal of encouraging workforce education for those in the lowest socio-economic status was not met. Mayor Tom Hall explained, "We went door to door with our

Conversely, India provides a vivid example of how an educated population can position itself to take advantage of new technological developments. Its has come a very long way from its pre-1947 rule by the British Raj, under which India's literacy was only 17 percent, life expectancy was 32.5 years, and its industrialization was designed to supply raw materials for British mills (Sachs, *Poverty* 174). India, with its middle class of over 300 million, its large cadre of literate highly-trained professionals, and its low cost structure, is successfully competing for outsourced global knowledge work, not because the technology is there, but because trained, literate, English-speaking doctors, accountants, engineers, and software developers are able to use the technology. During a trip to India, *New York Times* columnist Tom Friedman noted how, "Indian entrepreneurs wanted to prepare my taxes from Bangalore, read my X-rays from Bangalore, trace my luggage from Bangalore, and write my software from Bangalore." "Countries like India are now able to compete equally for global knowledge work as never before – and America better get ready for this," notes Friedman.

As observed by Friedman, "India is a country with virtually no natural resources that got very good at doing one thing – mining the brains of its own people by educating a relatively large slice of its elites in the sciences, engineering, and medicine." In the fifty years since their founding by Jawaharlal Nehru, "Hundreds of thousands of Indians have competed to gain entry and then graduate from these IITs [Indian Institutes of Technology] and their private sector equivalents (as well as the six Indian Institutes of Management, which teach business administration). India's business schools produce an estimated 89,000 MBA graduates per year (Friedman, *World* 31). "The jobs are going to go where the best educated workforce is with the most competitive infrastructure and environment for creativity and supportive government. And by definition those people will have the best standard of living," explains John Chambers, the CEO of Cisco Systems (Friedman, *World* 323).

ICT availability and Internet access are critical to India's success, but ICT alone is insufficient.[18] As Friedman notes, "India was lucky, but it's also reaped what it had sowed through hard work and education and the wisdom of its elders who built all those IITs" (Friedman, *World* 113). India was prepared to take advantage of ICT when it arrived. "I saw firsthand, repeatedly," says United Nations Special Advisor Jeffrey Sachs, "how India's ability to take advantage of the new IT possibilities resulted from its long-standing investments in higher education, especially in the Indian Institutes of Technology" (Sachs, *Poverty* 186).

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installers on Saturday at a public housing project and nobody was interested." (McFarlan 10). Harvard and Georgia State University researchers concluded that:

> "Based on our analysis, we believe that providing access to IT -- even access that is delivered for free to the home -- is insufficient to adequately address the Digital Divide" (Keil 8-9).

[18] Though massive amounts of poverty still exist on the Indian subcontinent, globalization of trade, manufacturing, and outsourced services seems to be good for the overall economy of the region. The World Bank's statistics indicate that in South Asia – primarily India, Pakistan, and Bangladesh – in 1990 there were 462 million people living on less than one dollar per day. By 2001, that number was down to 431 million and it is projected to be down to 216 million by 2015 (Friedman, *World* 315).

Reforming Universal Education

Reparations in human capital development would allow the African-American poor, as indicative of the needs of the chronic poor in general, to have a fairer opportunity to fully participate in economic, educational, and political life. [19] If literacy and abstract mathematical and logical thinking are prerequisites to advantageous use of computerized information tools that are increasingly required for modern economic and democratic participation, just what kind of changes are needed in our educational system?

This question is not new. It harkens back to the debate between the Booker T. Washington and W.E.B. DuBois schools of thought regarding the best way to "train and uplift the race" over 100 years ago.[III] DuBois believed in, first, a rigorous training of the mind in various academic disciplines and, then, training in a specific trade for breadwinning. Today many educators and scholars are advocating 'back-to-basics' plus a strong sprinkling of the classics. Washington believed in training for survival first, then training in the arts and letters "as intelligence and wealth demand." Business leaders today argue that schools are not preparing students for the job market.

Mr. Washington's philosophical flaw is actually a strategic economic mistake. Washington, from the Benjamin Franklin school of hard work, Puritan ethics and craftsmanship, advocated skilled training in the crafts and agriculture. This may have made sense during Franklin's day, but Washington's America was industrializing at a fierce pace. He was unwittingly training black youth for obsolescence. The skilled trades were being replaced by the technology of mass production and the manual labor of the farm was being mechanized with tractors, reducing the need for farmers and craftsmen. He failed to change with technological progress and, unfortunately, many of his graduates had to struggle blindly through yet another foreign economic system.

As far back as 1933, Carter G. Woodson (1875-1950) criticized the misaligned goals of educated blacks in his treatise, *The Mis-Education of the Negro* (xiii). Woodson considered the educational system as it developed in both Europe and America as, "…an antiquated process which does not hit the mark even in the case of the needs of the white man himself." Our educational process is designed to accommodate the needs of an industrial society, and it is becoming increasingly obsolete as the industrial society becomes more obsolete.

We need a working consensus to reaffirm the value of equal opportunity and upward mobility, but we must also admit that addressing such a massive problem requires revamping our educational system from the top to the bottom, replenishing our teaching corps, buckling down on the math and science instruction, and rescuing inner-city kids from illiteracy as Barak Obama stresses (22). We have to get beyond those who "would dismantle the public school system and those who would defend and indefensible status quo, between those who say money makes no difference in education and those who want more money without any demonstration that it will be put to good use" (Obama 22).

The biggest problem with the U.S. educational system is its thrust. It still attempts to educate for the Industrial Revolution. It has not begun to recognize the unique needs of an information-based society. In the 1980s, Alvin Toffler called our educational system's thrust, *'The Covert Curriculum.'* Consider his theory that as work shifted out of the fields and the home, children had to be prepared for factory life. If young people could be prepared to fit into to the industrial system, it would vastly ease the problems of industrial discipline later on. The result was

[19] The U.S. still has a significant inclusion problem when it comes to poor citizens of color. Though the U.S. public school system was legally desegregated over the past 50 years, de-facto segregation persists according to economic lines, which are determined by historical racial inequities. Jonathan Kozol, who worked in inner-city school systems for over 40 years notes that, "A segregated inner-city schools is almost six times as likely to be a school of concentrated poverty as is a school that has an overwhelmingly white population" (Kozol 20). In the academic year 2000-2001, 95 percent of the public school enrollment in Detroit, 94 percent in Washington, D.C., 88 percent in Baltimore, 87 percent in Chicago, 84 percent in Los Angeles, 82 percent in St. Louis, and 78 percent in Cleveland and Philadelphia were black or Hispanic (Kozol 8). Although standardized tests do not provide an accurate prediction of a particular student's likely academic progress, it is instructive to note that from 1976 through 1996 the National Center for Education Statistics reported that mean SAT scores ranged from 110-250 points more for white students than black student. We might conclude that separate educational facilities are still inherently unequal, as determined by Brown v. Board in 1955 (Loury 202).

mass education. Built on the factory model, mass education taught basic reading, writing, arithmetic, and a bit of history. This was the 'overt curriculum.' But beneath it lay an invisible or 'covert curriculum' that was far more basic. It consisted of three courses: punctuality, obedience, and rote, repetitive work. Factory labor demanded workers who showed up on time, workers who would take orders from a management hierarchy without questioning, and workers who were willing and able to perform repetitive, routine, mechanistic jobs (Toffler 22-248).

According to Toffler, for most American adults, their entire learning process has been little more than a twelve to sixteen year training program for the Newtonian worldview.[20] In school emphasis is placed on quantities, distance, and location but rarely on qualities or conceptions. Think of all the tests one was forced to take where the only questions asked were those concerning dates, names, places, and things that could be precisely measured. True, false, fill in the blanks, multiple choice, and matching answers are all based on Newton's concept of causality – that for every set of initial conditions there is one and only one correct final state. The most important aspect of such tests was not the answers but the process. One forgets specific facts over time, but few will ever forget the concept of causality after being subjected to the testing process for so many years, Toffler argued.

Thinking in terms of the Newtonian worldview is not totally incorrect, but is insufficient for today's realities. When educators claim they are teaching children how to think, this is the particular type of thinking they too often have in mind – linear, cause-and-effect, narrow-minded, yes/no, black/white, all-or-nothing thinking. There is no room for common sense, personal experience, and intuition.

Toffler went on to explain how the thinking process of the Newtonian paradigm was important because it produced results, and that meant learning facts. The more bits of information a student regurgitates, the better his or her grade. Facts are valuable because they help one to better understand the world and to better organize one's life. However, the amount of facts we know about the world is doubling every few years. Yet one would be hard pressed to claim that the world is becoming more organized as a result. One must free oneself from over-reliance on facts and train oneself and one's children to 'learn how to learn.'

The American educational process and the job market are devoted to specialization. Visit any university and too often one will see people walking from labs and classrooms each with a briefcase or backpack crammed with facts about the carrier's own discipline. Every time one learns something new and different about the universe, a new academic or professional discipline is set up to collect and interpret new data. Learning has become fragmented into tinier frameworks of study on the Newtonian assumption that the more we know about the individual parts, the more we will be able to make deductions about the whole the parts make up (Rifkin 93-230). With the exception of multidisciplinary programs, such as Stanford's Masters in Liberal Arts and similar ones endorsed by the Association of Graduate Liberal Studies Programs (AGLSP), the cardinal sin among academicians has too often been fraternization. Too many scholars would never cross-check notes with those in other disciplines. Interdisciplinary approaches have often been labeled 'not serious.' Yet it is these types of approaches that are needed today.

Today, the foreign economic system that a large segment of the African-American poor needs to master is one based on the value of ideas and the ability to exploit a global marketplace. While computers can be tools for economic advantage, merely acquiring a computer is as useless as gaining union membership in an industry that has moved offshore. Access to the tool

[20] The worldview and value system that lie at the basis of industrial culture and that have to be carefully re-examined, were formulated in their essential outlines in the sixteenth and seventeenth centuries. The medieval notion of an organic, living, and spiritual universe was replaced by that of the world as a machine, and the world-machine became the dominant metaphor of the modern era. This development was brought about by the revolutionary changes in physics and astronomy, culminating in the works of Isaac Newton. The science of the seventeenth century was based upon a new method of experimental or empirical inquiry advocated by Francis Bacon involved the mathematical description of nature and the analytic method of reasoning espoused by René Descartes (Capra, *Turning* 15-410).

The Scientific Revolution's major flaw was that it tossed all subjective data and human experience aside. Any phenomenon that could not be quantified was rejected. It assumed that time was linear, that people were like machines, there was no room for values, and that less technically advanced cultures had nothing other than natural resources to contribute to society. These ideas fostered racism, nationalism, colonial exploitation, and a capitalist economy based on greed, perceived unlimited resources, desires for unlimited growth, and the exploitation of nature.

is useful only to those prepared to use it. Washington could prepare ex-slaves for skilled trades, but those specific skills are of no value when relevant goals cannot be accomplished. In today's information economy, computers and Internet access are required, but are insufficient for socio-economic advancement.

The ability to use computers comfortably is the key to being functional in an information society. However, if one looks at those professions that regularly use computers to do their work, but that do not consider computer science as part of their specialty, two things become apparent, according to Vico Henriques. First, people working with computers have the confidence that it is just another tool to help them perform their jobs. They use computers as a secondary tool, just as they used telephones, calculators, or typewriters. The second is that people who work with computers are articulate and literate. Such diverse professionals as lawyers, engineers, librarians, medical professionals, and Indian call center operators all use the computer with equal facility, not because their academic training is similar, but because their basic communications skills are well developed (Henriques).

Michelle Small's prescription of over twenty years ago is still valid. She recommended that, regardless of their subject of study, students should acquire skills to know how to retrieve and collect information or how to hook up with storehouses of data in various parts of the world. Crucial preparation must include the ability to read, comprehend, and articulate various languages. Equally important are sound mathematical skills as well as basic understanding of symbolic languages or references, which easily derive from traditional disciplines such as map reading (Small 345-49).

Small recommended that the emphasis in learning must dramatically shift from its industrial era approach. For example, education should stress process over measurement. The notion of collecting, storing and exploiting isolated facts should be replaced with the idea of examining the flow of interconnected phenomena. Testing needs to focus on conceptual abilities over empirical ones. Essays, oral discourse, and practical experience should become standard forms, reflecting the need to think in terms of process. The external world needs to be seen not be a series of isolated causal relationships, but as a web of interrelated phenomena expressing many possible scenarios for movement and changes. More than any other revolution in education, children need to be taught how to expect and adapt to rapid change, Small stressed.

One might need to view the world according to the holistic or systems theories that were advocated by futurists such as Marilyn Ferguson, who suggested that one should, "View the problem in its entirety, including its context, then use rational and intuitive approaches to derive a solution" (48).

One might also borrow several ideas from Joel de Rosnay's *Le Macroscope*. Avoid traditional linear or sequential approaches and favor those that consists of coming back many times at different levels over the material that must be understood and assimilated. This approach, for example, would proscribe the chapter-by-chapter method of teaching. Only when the work under study has been read, discussed, and evaluated in depth should the slow, analytical process start. It is only when one sees the total picture of a jigsaw puzzle that one can appreciate its discrete components and interrelationships. Avoid definitions that are so precise that they either polarize or limit the play of imaginations. Stress the importance of the concepts of limits, mutual causality, interdependence and dynamic equilibrium in the study of complex systems; taking as examples the disciplines which integrate the notions of time and irreversibility, such as biology, ecology, and economics. Use a thematic approach at the vertical level that can integrate many disciplines and different levels of complexity around a central core. Never separate the knowledge of the facts from the understanding of the relationships that link them. Emphasize the notion of Heisenberg's *Uncertainty Principle*, which debunks the myth of objectivity and shows that the observer is irrevocably bound to the observed. Stress the multiplicity of individual and cultural values and the relativism of worldviews. Allow for, and encourage an intuitive, creative, non-rational approach to problem solving (Small 345-49).

In addition, life-long learning will be increasingly seen as necessary. Besides on the job training, leaves of absence, seminars, short courses, co-op learning programs, the emphasis of the educational process should shift to innovative learning. Innovative learning, as advocated by James Botkins, is the process of preparing individuals and societies to act in concert in new situations. Botkins advocates training oneself how to learn and apply technologies in changing

situations, i.e., one learns how to learn. This is not meant to ignore other actions involving political power, science, economic policies, and cultural differences, but to incorporate them with anticipation and participation.

Anticipation is the capacity to face new situations. Anticipatory learning stresses preparation for future alternatives, not adaptation to the present. It goes beyond foreseeing or choosing among desirable trends and averting catastrophic ones. It also enhances the ability to create new alternatives. Its opposite is adaptive, reactive learning, where one responds only to given changes in the environment, delaying the search for alternatives until it may be too late to implement solutions. Under reactive learning those who really should be alarmed are not moved by gradual deterioration. It is only when events explode that people suddenly look up for the cause, which has already passed.

Participation forces individuals to have direct influence in the decision-making process, to strive for equality, and to reject limiting roles. An intrinsic goal of effective participation will be an interweaving of the demand for rights with an offer to fulfill the obligations that such rights entail.

Activating the latent potential of innovative learning over a life long period hinges largely on the degree of effective participation and the ability to anticipate technical and social changes (Botkins 339-41). With the dramatic changes that will continually face the global society, does it make sense to limit learning to a pre-programmed, Newtonian, linear, non-flexible, few doses of reading, writing, and arithmetic?

More broadly, liberal education is and will continue to be a failed idea as long as students are shut off from, or only superficially acquainted with, knowledge of the kinds of questions science can and cannot answer. Nor can liberal education be a success as long as students are unable to evaluate the evidence of their own experience. David Saxon, former President of the University of California at Berkeley suggested the following program. First, students should be helped to understand the nature of physical laws – what they are and what they are not, what they can tell us about the physical world and what they cannot, how they are arrived at, and in what sense they are true. Second, students should have some grounding in the laws of probability and chance, and thus some understanding that in a world as complex as ours both statistical fluctuations and the accidental coincidence of unrelated events happen all the time. Third, the idea should be conveyed that science is not a collection of isolated facts but a highly unified and consistent view of the world. They should understand that science has a foundation of large general laws that link together various observations about the physical world and provide a framework within which various potentialities, facts and theories can be evaluated. Further, Saxon stated, “The ability to distinguish sense from nonsense is an indispensable aspect of a liberal education.”

In a globally-based economic system, where international cooperation, competition, and “coopetition” are the facts of life, the modern U.S. educational system can no longer be inward-looking. Fareed Zakaria observes that America’s isolation [or perhaps its hubris] has left too many Americans unaware of the world beyond the U.S. borders. He also identifies a growing gap between the worldly business elite and cosmopolitan class, and the majority of the American people. “Americans speak few languages, know little about foreign cultures, and remain unconvinced that they need to rectify this. Americans rarely benchmark to global standards because they are sure that their way must be the best and most advanced.” Zakaria warns that this divide could destroy America’s competitive edge and its political future (46). We need an educational system that offers the ability to interact with foreign students, to travel abroad, and to reinforce that the latest trends – in finance, architecture, art, and technology might originate in London, Shanghai, Seoul, Tallinn, or Mumbai, notes Zakaria (46).

Finally, but perhaps most importantly, America gets what it pays for. How can we value education without valuing the educator? Why should the best college-educated minds have to take a vow of poverty to teach the next generation of leaders, builders, and citizens? If four to six years of college math and science can produce a $100,000 salaried engineer, why must the same qualifications be less valuable in the field of education? “If we’re serious about building a twenty-first century school system, we’re going to have to take the teaching profession seriously,” Obama explains (162).

When life long, innovative, holistic, and global approaches to education have been established and are being implemented by a teaching profession that is valued as a “profession,”

then, and only then, should computer-based technology be used to enhance and extend the learning experience and the flow of productive work. The technological ICT hardware can be utilized to its fullest potential and smoothly integrated within the new education as a useful tool instead of as a haphazard, uncoordinated, stop-gap measure (Small 345-49).

Integrating Computer-Based Information Systems in Educational Initiatives

Since lifelong learning and skills retraining are required, policies that seek to close the digital divide should make new technologies and educational tools available to anyone, anytime and anywhere. Apple's former Chairman, John Sculley, best described a vision for education in the early 1990s by saying, "By the end of this century, we want to create in this country a true learning society – where learning is not bound by the age of the students, or the walls of the institution, but where it is a lifelong process rich in knowledge and rich in enjoyment" (White 6). Sculley argued that in the information age, the ability to exchange information not only with classmates but with the city library, commercial databases, bulletin boards, or even the Library of Congress can help students develop lifelong skills for accessing and handling information (White 5).

Much of this technology already existed in the 1990s and was, or was soon to be, adopted for this purpose. This included multimedia, two-way video conferencing, portable wireless technologies, intelligent agents, and high-speed digital communications networks. The National Information Infrastructure, as it was called during the early days of the Clinton Administration, is now what has become the World Wide Web and is one of the essential pieces in leveling the playing field by allowing access to the same educational and research resources to all.

In barely ten years, the personal computer evolved from a classroom novelty to a widely used instructional tool. Computers found their way into private and public schools in the U.S. over the past two decades and they have been used to enhance and strengthen the curriculum in basics, such as language, science and math. They have also become important tools in allowing teachers and schools to accommodate individual learning styles, enhance students' interactions with each other, build self-confidence, and improve motivation. According to the Office of Technology Assessment (OTA) in 1988, in schools where computers were integrated into the classroom to help deliver the curriculum, students showed substantial improvement in math, reading and writing. They also exhibited higher-order thinking skills, were better behaved, and showed much more motivation to learn. The OTA concluded that the computer could be used as a tool to help children understand abstract concepts, process information, appreciate different perspectives, develop critical-thinking skills, and collaborate on problem-solving (OTA Power On! 23-28).

The US educational system also needs to be open to learning from the successful experiences of other countries and cultures. Where the 'real digital divide' has had a successful track record toward closure, for instance in India, China, Korea, Estonia, and Finland, it seems to have been where the issue was not perceived as access to ICT per se, but access to social and economic opportunity to make productive use of the technology.[21]

[21] According to the World Bank's report issued at the 2001 Summit of the Americas, information and communications technologies are critical to the economic development of societies. As such, ICT became widespread in many developing countries during the 1990s, with annual rates of investment doubling between the first and second half of the decade (World Bank 1). In addition, the World Bank believed that ICT offers new avenues for economic development of special relevance for the poor in economic opportunity, inclusiveness, and provision of government services:

- Economic opportunities. Electronic commerce through the Internet opens up substantial new areas of international trade to developing countries. Two sectors with great potential to benefit are service industries, many of which are becoming tradable commodities for the first time, and small and medium enterprises, which benefit from the low cost of access to the global marketplace.
- Costs of exclusion. ICT services can substantially reduce the costs of distance and isolation borne by poor, especially rural, households, whose members must often travel long distances to communicate, and obtain vital information. Their isolation causes them to miss out on employment and other economic opportunities.

The OECD member countries have emphasized ICT skills in their efforts to connect all schools to the Internet, train students in ICTs, and provide programs for non-students to obtain computer literacy. According to a 2005 OECD report, these efforts have paid off handsomely in countries such as Korea where a strong government push to supply ICT training to those affected by the 1997 financial crisis has helped fuel PC and broadband adoption (OECD 21). Policy makers in non-OECD countries have created similar plans and have boosted penetration rates. One such economy is Estonia where government initiatives aimed at promoting a computer-literate generation have been successful.[22]

Estonian policy makers have been successful developing a broad base of ICT skills throughout the country. The government's flagship program, Tiger Leap, has successfully integrated information and communication technologies into classroom instruction, resulting in a new generation of students with computer skills who demand faster Internet connections, better content and more extensive telecommunication network coverage. In Estonia, introducing students to computers early in their studies has also helped move more students towards technical careers later.

In addition to teaching ICT skills early to students, Estonia's policy makers have made promoting ICT use a priority. One example is new street signs giving the direction and distance to the nearest public Internet access point. The signs are marked with '@ Internet', an arrow and the distance to the nearest of 700 public Internet access points across the country. The government has also taken a proactive approach to integrating computers and telecommunications into government activities. The Estonian government has paperless 'e-cabinet' meetings where government cabinet members can examine documents and cast votes via computer. Estonia's projects have largely been a success, with mobile, fixed and Internet penetration rates as high as other leading European economies. (OECD 21)

Today, Apple's predictions of a student using a computer to explore a virtual museum, moving room to room, examining exhibits via long-distance interactive three-dimensional movies has come true. New technologies, such as digital video and distance learning using telecommunications technologies, are ways of leveraging our best teachers, our best schools, and giving the educational reform movement a chance to take hold in a place where it can be most effective – the classroom. The technology exists to accomplish all of these tasks, but the question of equitable access remains.

John Sculley argued that this technology could not be available only to the affluent. America must avoid the trap of 'haves' and 'have-nots.' Inner-city schools and deprived rural areas must also have access. The popular myth that children who have not grown up with the same advantages as affluent children are unable to learn at the same rate has been disproved. What children from disadvantaged backgrounds need is a chance to be exposed to the kind of mind-amplifying tools that more affluent children have (White 6). That is a very important finding for the nation because we are a multicultural, very diverse population, and America has to build on that strength.

- Improving government and public services. ICT offer powerful tools to improve the efficiency, quality, and reach of public services that are important for poverty alleviation, such as education and health. ICT can also broaden political participation and increase the transparency of government. (World Bank 1)

[22] According to the OECD, the results have been impressive with Estonians achieving penetrations equal or higher than other richer countries in Europe. In June 2004, TNS Emor Internet usage surveys show that 52 percent of Estonians between the ages of 6 and 74 use the Internet. The same study finds that the most active Internet users are people between the ages of 12 and 24, 90 percent of whom use the Internet. The percentages are also high for primary school students where two-thirds of students between the ages 6 and 9 are Internet users.

Conclusion

Title VII Section 703 of the Civil Rights Act of 1964 requires equal employment opportunity and forbids employment discrimination based on race, color, religion, sex, or national origin. However, today, information and ideas from workers are the strategic resources that improve productivity and are the bases of employment. The result is that the segments of the American population lack education and skills for the new technology-based economy and are not able to effectively compete for employment or develop the entrepreneurial businesses that take advantage of this new global ICT-based infrastructure.

The political euphemism 'digital divide' is not 'digital' per se. It is a socio-economic divide further amplified by digital technology. The inequities of opportunity created by the skewed distribution of ICT toward the rich, powerful, and white, are not just a function of the price and availability of technology, nor access to that technology. Those inequities existed as social problems before modern ICT's development; ICT exacerbates the differences between 'haves' and 'have nots' with regard to economic opportunity, educational attainment, and participatory democracy.

To the degree that human capital development in the form of economic opportunity, educational attainment, and participatory democracy are constrained to an elite few, this is a social problem rather than a technical one. So, Anthony Wilhelm's contention is correct. The great challenge of the twenty-first century 'digital divide' is not a technological problem, but rather a social one, where the global society must come to terms with our diversity (Wilhelm 125). It is about human capital development, rather than technology acquisition and Internet access, per se.

The superficial argument of equitable distribution of computers, communications lines, databases, and software programming masks the complexity of this social problem. The digital divide is a struggle for relevant distributive justice applied to life sustaining priorities, such as health, poverty, and illiteracy, and access to the infrastructure for public goods, services, and wealth. This social evolution is occurring in a rapidly transforming information economy that is intertwined with historical issues of race and class. As such, the 'real' digital divide is not about the just distribution of computers. It is about the just distribution of opportunity for economic and social development in a technological society. Distributive justice and John Rawls' Difference Principle can be valuable tools in helping one to re-examine and redefine moral responsibilities and obligations in an era of technologically-enabled global socio-economic restructuring.

Perpetuating the various social divides in an era of intensive technology-enabled expansion of the global economy, knowledge, and effective political participation only exacerbates the dire problems of the poor. To restate the Biblical parable, we are giving them fish, rather than teaching them how to fish. It sentences the poor to permanent subsistence status, or at best, to a permanent servile caste. Indians are successfully competing for outsourced global knowledge work, not just because they have access to the ICT technology, but because a 300 million-strong Indian middle class cadre of literate, highly-trained, English-speaking doctors, accountants, engineers, and software developers are able to use the technology with a low cost structure.

As one can see in the example of Indian entrepreneurs, the 'real' digital divide is not about the just distribution of computers. It is about their ability to seize the opportunity for economic and social development in a technological society.

Given that training on the use of computer technologies can focus on tools for research and exposition of ideas as well as practical tools for either employment in the ICT industry, for such hands-on jobs as repair and customer support, or for entrepreneurial business ventures, the discussion of skilled trades versus higher-order academics is brought back to the surface. One might look at debates between those who propose vocational and technical education versus those who demand enlightened liberally educated leadership to 'look out for the best interests' of the masses to be a revisiting of the DuBois-Washington debate.

The answer lies not in decisions requiring *either* academics *or* trades, but one that values *both* scholars *and* inventors, global vision *and* local action, entrepreneurs *and* skilled workers. The greatest need today is for creative, technically literate people who can think through problems, communicate them succinctly, and get results with minimal non-renewable resources. We need people who are generalist in many things and specialists in a few.

Reforming the U.S. education models has not and will not be easy. Among other things, it requires investments. This country invested in interstate highways, electric power grids, network television, and national newspapers, in order to provide an infrastructure for the industrial order. In the same way, the new education system requires investment, one that is as important as any investment ever made in the infrastructure of this country. However, those educational investments should not be simplified into the tangible artifacts of computers and networks alone; human capital development has to be the goal of education. This will directly affect the quality of life, our productivity as a nation, and America's ability to compete in the new global information-based economy.

Regardless of how low one stands on the economic ladder, technology cannot be ignored and, as a matter of distributive justice, it is unethical to deny certain groups access to the technology-based public infrastructure. However, the most important aspect of a reparations system will likely be one that gets serious about a wholesale upgrading of literacy, logical thinking, mathematical skills, research, and entrepreneurship demanded by a twenty-first-century economy and educational system for both children and adults. Only then will computer-based tools be relevant to the day-to-day needs of the poor.

In the context of the 'real' digital divide, there is no excuse for social and economic exclusion in the twenty-first century. From a utilitarian perspective, human capital development is a better investment than the social costs of non-productive lives. Likewise, for the African-American community, especially those members who are disadvantaged by poverty and illiteracy, *abstention* is not a viable option.

"In a world where the ability to communicate, educate, and participate in government are as fundamental as food and medical care, we dare not address the global and domestic digital divide – a gulf of economic development opportunity."

-- Kofi Annan, Former United Nations Secretary General

Note -- The full text of the original thesis, edited for public consumption, plus some additional editorial material can be found at:

http://www.strategic-tech.org/images/Requirements_of_Justice_Arising__from_the_Digital_Divide.pdf

A version dealing with the international implications of the Digital Divide can be found at:
http://www.strategic-tech.org/images/Ethics_of_the_Global_Digital_Divide.pdf

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Notes

[I] Background on the Original Thesis

The earlier analysis in the thesis, *The Requirements of Justice Arising from the Digital Divide*, was meant to provoke us into reexamining our assumptions regarding the concept of moral rights and obligations in the provision of public infrastructure in a technological society. The project used classical ethical concepts to examine the moral distribution of public goods and services. The framework for stripping away the various political and emotional arguments regarding the Digital Divide in the United States was based on the late 20th century principles of John Rawls (1921-2002), which are based in part on the 19th century utilitarian works of the British philosopher John Stuart Mill (1806-1873). Specifically, John Rawls' *Difference Principle* would allow social and economic inequalities to exist only if they satisfied two conditions:

- There must be fair equality of opportunity (in other words, it is irrelevant to give one a right that they are unable to take advantage of); and
- The greatest benefit should go to the least advantaged members of society (Rawls, *Political Liberalism* 5-6).

Since the actual divide is structural, computer-based solutions do not solve the problem. Persistent social and economic inequities of a poverty-stricken underclass, which is further stratified by race, continue to be exacerbated by new generations of technology. In fact, technology thrown at social problems tends to exacerbate the inherent social and economic inequities. Well-intentioned government programs to utilize computers to provide services can miss their target audience. The paper demonstrated how technology-intensive race-neutral attempts to address the Digital Divide are contrary to Rawls' Difference Principle and risk violating certain long-cherished civil rights, notably:

- The Voting Rights Act of 1965
- Civil Rights Act of 1964 -- Anti-Discrimination in Public Programs
- Brown v. Board of Education (1955) – Separate is inherently unequal

Consider the example of how in March 2000, the Arizona Democratic Party hosted the first binding online vote. Registered Democrats were given four days to vote in the election by computer, but only one day at polling places. This may have had the unintended consequence of increasing the representation of white voters, since Latinos, Native Americans, and African-Americans who were underrepresented in the online population were given less opportunity to vote than their white counterparts (Wilhelm 67-71).

An Alabama program offered by the state employment agency encouraged jobless citizens to use a regional 'one-stop' center that offered training, job listings, and other employment assistance. However, billboards erected in the poorest part of the state only listed the website address as contact information (Wilhelm 73). This is tantamount to replacing 'White Only' signs from the 1950s and 60s with 'Digital Only' signs today. It may also be a violation of the Civil Rights Act of 1964's prohibition of discrimination in public programs

Consider as well, how the U.S. Secretary of Agriculture, Ann Veneman, launched a program in 2003 to fight hunger, but it used an online prescreening tool to determine Food Stamp eligibility (Wilhelm 73). It is ironic, insensitive, and arrogant for the government to be unaware that most Food Stamp recipients are not online.

Using a framework developed by Stanford's Robert McGinn, the earlier paper argued that, by virtue of their historical exploitation by a society that wielded previous generations of technologies against them, the African-American poor (as a surrogate for the systemic issues of America's poor in general) have a moral right to the modern equivalent of the civil rights won in the 1950s and 1960s, e.g.,

- The vote,
- Nondiscrimination in public services,
- Equal access to education,
- Nondiscrimination in employment, and
- Human capital development appropriate for the new challenges and opportunities that Information & Communications Technologies present.

As McGinn explains, since social change is a joint product of the technical change in question and the 'initial social conditions' under which the technical change is introduced, the relative starting position of a group is a key indicator of its likely success in leveraging a new technology (McGinn, Science 96-97). Following McGinn's framework, when one looks at the starting positions of African-Americans over time, one finds them lagging behind the state of technology when they were captured and enslaved. During this period of enslavement, the forced, unpaid, servile caste of blacks were prohibited from learning how to read and write (Wright 38) and were prohibited from tasks requiring wide dispersion, extensive travel, firearms, or control of large sums of money (Sowell 84-85). In later generations, mechanized agribusiness eliminated the need for sharecropping and large-scale manual labor in agriculture and therefore displaced 6.5 million blacks into the foreign industrial system of northern and western cities; 5 million of them moved after 1940 (Lemann 6). Globalization of manufacturing negatively impacted 310 million people between 1993 and 2002, including the 44 percent of black men and 11.5 percent of black women who held jobs in industrial operations, fabrication, precision

crafts, repair, or as laborers at a time when they had just begun to attain unionized industrial positions. The current globalization of service sector jobs and intellectual expertise will likely further exasperate the competitive situation for those just starting to make progress in the corporate structure.

If one is willing to rationally examine the structural impediments of blacks, then it may be easier to understand the less obvious structures that impede the poor in general. As Harvard's Glenn Loury observes, when it comes to African-Americans, whether the inequality in economic opportunity resulted from the historical actions of a hostile or indifferent American society, or whether it is due to the pathological actions of those within the group, the resulting inequities have occurred within the confines of the U.S. social system and under the influence of the peculiar relationship of social behavior, customs, expectations, laws, and self-fulfilling prophesies that have a particular American character. In this case, color-blindness, though admirable in some respects, ignores the reality and allows the culpable to escape responsibility for being part of the solution.

Leveraging a new technology might require a group to fulfill new behavioral or intellectual requirements, commensurate with the new behavioral or intellectual possibilities opened up by the technology (McGinn, *Science* 97). When considering the digital divide in America, it is instructive to do so in the context of overall educational preparation, social acceptance, and economic opportunity available across race and class lines.

Human Capital Development suggests an intrinsic notion of education in skills necessary to make mature informed judgments in a participatory democracy and the ability to bring capacities to the table that have value in the marketplace of ideas and goods (Wilhelm 45). The focus of this supplementary paper is Human Capital Development, and progressive steps in support of it will be examined in depth. It is important to note that, given the structural changes going on in the global economy -- changes which benefit highly-educated, flexible, politically astute, visionary entrepreneurs -- the superficial argument of equitable distribution of computers, communications lines, databases, and software programming masks the complexity of this social problem. Though this author is not a professional educator, the *Requirements of Justice* paper strongly advocated a serious wholesale W.E.B. DuBois-style upgrading of literacy, logical thinking, mathematical skills, research, and entrepreneurship demanded by a 21st century educational system for both children and adults; rather than a rehashing of a Booker T. Washington-style basic or vocational education model designed for the Industrial Revolution.

Though this author is a long-term Silicon Valley engineering executive, the paper argued that mere computer-based access to public services, though required, are insufficient to provide equal opportunities for one to become a fully capable participant in either the modern American democracy or the global economy. Our schools do not have to turn each student into an engineer. Rather, students should be taught how to understand and use the computer to accomplish their own ends. The chronic poor should not throw off technology. Rather, as disadvantaged communities embrace technology, they will need to incorporate the best of technology with the best of philosophy. In addition, the rampant attitude of American one-upmanship and global competitiveness necessitates underserved communities to cling to the DuBois school of political activism in an effort to hold on to their meager rights and property. Only then will computer-based tools be relevant to the day-to-day needs of the poor.

[II] Closing the Digital Divide in an Era of a Widening Human Capital Gap

The Commerce Department reported that high-speed Internet access had reached 40.4 percent of urban households and 24.7 percent of rural households by 2003. However, minority residents had lower adoption rates, with 14 percent of black and 13 percent of Latino households having broadband. Research by the City of Philadelphia, in preparation of its Wireless Philadelphia Business Plan, indicated an inverse correlation between school poverty levels and both home computer ownership and Internet access (22). Given that 71 percent of Philadelphia public school students are considered 'low income' and 79 percent are either black or Hispanic, a strong case was made that blacks in Philadelphia did not have an adequate or equal opportunity to take advantage of Information & Communications Technology (ICT). Similar data exists for other cities, including but not limited to Chicago, Detroit, Milwaukee, Boston, and New York (Kozol 321-24).

As a result of public and private support for providing computers and Internet access in U.S. schools over the past decade, a report from the National Urban League indicates that there was major improvement in closing the digital divide in 2005. The Urban League's index in 2005 showed that blacks' access to computers experienced an 18-point improvement over 2004 figures, when compared to whites with home Internet access.

As for demographic divides among U.S. Internet users as a whole, the 2006 *Pew Internet & American Life Project* came to the conclusion that 72% of whites and 69% of English-speaking Hispanics use the Internet, while 58% of African-Americans do. More than 80% of people aged 18 to 49 use the Internet, while only 33% of those older than 65 do. Also, 59% of those with a high school education use the Internet, while 91% of college-educated people do. Notably, only 36% of those without a high school education use the Internet.[II]

Pew's 2007 survey continued to show improvement with 62% of African-Americans, 73% of whites, and 78% of English-speaking Hispanics using the Internet. Even those with less than high school educations showed small improvements to reach 40% online.[II]

As a matter of technology diffusion, the digital divide is slowly closing. Perhaps the free market proponents, such as the Cato Institute have a valid point. If access is not denied, but is provided in a laissez faire manner as a function of normal technology diffusion, maybe one sees a predictable pattern where the rich always lead in adoption. They argue that as the costs of the technology come down and as technology is found in public places, even the poorest of citizens will have access to ICT over time. So, to this group, the divide is closing and it would be unethical to favor one group over

others. If this is true, John Stuart Mill's distributive justice involving the maximal dispersion of the benefits of technology has a good chance of occurring over time.

However, in the U.S., the Digital Divide debate is merely a surrogate for the degree of fairness, or the lack thereof, associated with the infrastructure for the systemic distribution of goods, services, and wealth in a rapidly transforming information economy that requires a certain level of technical sophistication for one to be an active and successful participant. In spite of improvements in ownership, access, and usage of the Internet and computer-based systems for education and entertainment, the U.S. has not progressed that far from the state espoused by the 1968 Kerner Commission Report. We continue to move toward two societies, one rich and the other poor – separate and unequal – where a large percentage of the poor are African-Americans.

In 2004, the United States had 37 million people in poverty, up 1.1 million from 2003 (U.S. Census Bureau: I*ncome, Poverty, and Health Insurance Coverage in the United States*, 2004). The U.S. government's official poverty line is set at $19,300 per year for a family of four, or $9,800 per year for an individual under 65. 2004's overall rate of poverty was 12.7 percent (WashingtonPost.com, and Newsweek interactive chart on 21 September 2005). The poorest 10 percent of people in the U.S. receive only 1.9 percent of the country's income, just ahead of China's 1.8 percent, and straggling behind the United Kingdom, Italy, France, Germany, and Japan, whose poorest 10 percent receive 2.1 percent to 4.8 percent of the country's income.

When looking closely at the systemic poor in the U.S., the underclass of poor people encompasses all races and ethnicities. However, the case of African-Americans is both easily identifiable and of historical significance. African-Americans comprise 12.3 percent of the U.S. population, but 24.9 percent of America's poor (The Urban Institute using 2000 U.S. Census data). In addition, the individual successes of specific African-Americans can allow us to forget that a large underclass exists in 21st century America; and that caste has historically been and continues to be stratified by race. The Brookings Institution notes that the concentrated poverty rate among blacks in Miami was 68 percent, Louisville 53 percent, Fresno 45 percent, Atlanta 41 percent, and pre-Katrina New Orleans was 35 percent (Berube 3-4). As noted in this author's earlier paper, these extremely poor, racially segregated neighborhoods did not appear by accident. Governmental policies of the Federal Housing Administration and the federal Interstate Highway Act contributed to these imbalances.

Between 1972 and 1997, statistics from the National Center for Education Statistics show that among high school graduates, the employment rates ranged from 50 percent to 55 percent for blacks and from 75 percent to 80 percent for whites (Loury 187). For high school dropouts, the rates were a dismal 45 percent for whites and 42 percent for blacks in 1972, but by 1997 the employment rates for high school dropouts were 43 percent for whites and only 15 percent for blacks (Loury 186).

This data shows that, for whatever societal or internal group reasons one might apply for black poverty from the 1970s through the 1990s, the reality was that 85 percent of the high school dropouts and 45 percent of the graduates were unemployed, 60 percent of black children were not living in a household with both parents, and 30 percent of children lived below the poverty line. This is not an economically stable and intellectually nurturing environment in which children might take the best advantage of new educational and technological opportunities placed before them.

III Educational Schools of Thought: Booker T. Washington vs. W.E.B. DuBois

Booker T. Washington (1856-1915), former President of Tuskegee Institute, faced the dilemma while aiding ex-slaves in making the transition to a producer-consumer society, one in which blacks had to pay their own way in a foreign economic system. He urged strong vocational education in agriculture and the skilled trades at the expense, if necessary, of a broad-based education (Washington 131-58). Largely seen by today's blacks as conciliatory to whites, Washington's arguments deserve further examination and updating as we make the transition to a new global economy in which India is experiencing rapid growth in the IT services sector and Asia has experienced two decades of growth as a assembler and manufacturer of high-technology products.

It was Washington's 1895 speech before the Cotton States and International Exposition, called the 'Atlanta Compromise,' that caused the most furor among blacks. He asked white Southerners to abide by the law and to aid in the education of blacks. He asked blacks to postpone their fight for political power and social justice until they gained more prosperity (Washington 131-58).

Others did not share his hopeful view of whites. Dr. W. E. B. DuBois (1868-1963), the Harvard-educated black sociologist and professor who later served as an editorial voice for the National Association for the Advancement of Colored People (NAACP), wrote that Washington had given up three things essential to black improvement: the vote, social equality, and liberal education. DuBois believed that success meant more than monetary gains. He accused Washington of preaching the 'Gospel of Work and Money' to the extent of overshadowing the higher aims of life.

He also blasted Washington for accepting the alleged inferiority of blacks. DuBois eloquently stated in Souls of Black Folk that "manly self-respect is worth more than lands and houses, and that a people who voluntarily surrender such respect, or cease striving for it, are not worth civilizing." Further asking, "Is it possible, and probable, that nine millions of men [blacks] can make effective progress in economic lines if they are deprived of political rights, made a servile caste, and allowed only the most meager chance for developing their exceptional men?", DuBois set the stage for a great disagreement over methods of reaching the same goal – compromise vs. confrontation (DuBois 42-88).