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**Possible Reasons for the Black-White Mean Score Differences Seen With Many
Cognitive Ability Tests: Informal Notes to File**

by:

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Notes to File: Some Informal Thoughts About Possible Reasons for the Black-White Mean Score Differences Seen With Many Cognitive Ability Tests

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February 4, 2009

Introduction

Over the years I have noticed in the general and professional literatures a variety of facts that suggest possible reasons for the Black-White mean score differences seen with many cognitive ability tests, especially employment related tests. A number of these possible reasons are described below. I present these reasons using the general categorical scheme in Figure 1, choosing a category for each potential reason even though some of the reasons might fit in more than one category.

Figure 1. Categorical Scheme for Possible Reasons for Mean Score Differences

- I. Not Inherited
 - A. Physiological
 - 1. Prenatal
 - 2. Postnatal
 - B. Economic and Socioeconomic
 - 1. Healthcare
 - 2. Criminal Justice
 - 3. Education
 - 4. Finances
 - 5. Employment
 - 6. Housing
 - C. Psychological - not test construction
 - D. Societal
 - E. Cultural
 - F. Test Construction/Validation
- II. Inherited

There is empirical evidence that psychologists tend to overemphasize the importance of individual differences and under emphasize the importance of the structure of the socioeconomic system when considering individual differences (Prilleltensky, I., 1997, Values, Assumptions and Practices, *American Psychologist*, page 523, column 1). In an attempt to counter this tendency, I compiled the following list of possible reasons for observed mean group differences in test scores.

There are more than 95 possible reasons listed below. Many of these are plausible rather than proven, and each deserves more thorough treatment. Some could affect any group, but are included on evidence or on the presumption that they apply more to Black Americans. For

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example proportionally more Black Americans than White are poor and live in less healthy surroundings. Some reasons require an inferential leap between the topic and measured intelligence, which I feel is plausible and justified in a preliminary, exploratory work such as this. References are provided where available, but often to non-professional sources (mainly newspaper articles). Although qualitatively different from peer-reviewed journals, these sources will suffice for my purpose here, which is to advance plausible possible reasons, not to provide proof of the operation of any or all of these reasons.

Taken together, the items below suggest that Blacks in America today are ghettoized and marginalized in many respects and in many ways. This has left, and continues to leave, Blacks in America vulnerable to a variety of social and environmental factors, including in areas of health, education, housing, and criminal justice. In several of the items below, findings related to other marginalized minority groups are reported because they may also be true of the Black American population.

It is not my intent to suggest that there is a single, unitary Black American experience (even recognizing possible regional differences), but rather to generalize about the population's unique situation with a mind toward understanding how that situation may contribute to disparity in group mean test scores. It might be noted that a focus on Black-White mean score differences implicitly assumes that Black Americans constitute a group with common characteristics that warrant attention. Even though I acknowledge that this population is not homogenous across any variable (class, educational attainment, religion, etc.), this paper is, in part, an effort to identify some of the more common characteristics.

It is important to note that no one reason presented below is likely to account for more than a small fraction of the typical 1 s.d. difference seen in mean cognitive ability test scores for Blacks and Whites. It is possible that together they may account for much or all of that difference, or more.

I make no claim that the list below is exhaustive, and there are possible reasons which I have not listed for lack of an appropriate reference or simply for lack of time. I will try to post updated versions of this document from time to time at the following URL:

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www.personnelselection.com/adverseimpact.htm.

I welcome comments on this list as well as suggestions for other possible reasons.

Joel Wiesen

Not Inherited

The possible factors which are not inherited are considered first. These include physiological, economic and socioeconomic, psychological other than not test construction and validation, societal, cultural, and test construction/validation. There is some evidence that such variables account for the lion's share of the variance in performance on cognitive tests. For example, an analysis of the National Assessment of Educational Progress database showed that ethnicity accounted for 4.5% of total variance in math achievement in 12th graders, after such variables as parent education, exposure to math, and motivation were statistically controlled. These other variables accounted for 46.7% of the variance. When ethnicity was entered as the only factor, it accounted for 11.9% of the variance. (See Byrnes, J.P. 2003. Factors Predictive of Mathematics Achievement in White, Black, and Hispanic 12th Graders. *Journal of Educational Psychology*, 95, 316-326, esp pg 321).

Physiological

There are some possible factors which are physiological but are not inherited.

Prenatal

1. Prenatal Exposure to Pollutants

Children whose mothers ate large quantities of fish from lakes polluted with high concentrations of PCBs showed both developmental delays of 6 months and, by 11 years of age, an average IQ 6.2 points lower than comparison children. (J. Raloff in *Science News*, September 14, 1996, page 165, quoting work by Jacobson, J. L. and Jacobson, S.W. of Wayne State University in Detroit, appearing in the 9/12/96 issue of *The New England Journal of Medicine*.) For such reasons, the New York State Health Department advises people not to eat some species of fish, such as catfish, and to eat other species, such as striped bass, no more than one a month. Women of child-bearing age and young children are advised not to eat any fish from the Hudson River. (J. E. Brody, *New York Times*, September 12, 1996, page A14.) The U.S. Environmental Protection Agency reported that it would adopt a new approach, focusing all environmental protection standards on risks to children. (J. H. Cushman, Jr., *New York Times*, September 12, 1996, page A14.) PCB exposures are widespread in the US and "may lower IQ by at least 5 points." (*Science News*, March 1, 1997, page S19.)

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The Environmental Protection Agency reports there are fish advisories concerning contaminants such as mercury, dioxins, PCBs, pesticides, arsenic, and lead, etc. for 35% of the nation's lake acreage and 24% of the nation's river miles (CNN.com, Wednesday, August 25, 2004, Toxin warnings grow for U.S. fish, see <http://www.cnn.com/2004/TECH/science/08/25/bc.fish.pollution.ap/index.html>). This may differentially affect Blacks, if their diet contains more fish from polluted lakes. (Perhaps related to low income. Need reference.)

2. Prenatal Experiences Leading to Premature and Low-Birth Weight Babies

In a study on 832 pregnant inner-city women, women consuming 60% or less of the recommended daily allowance of folate (a B vitamin) had twice as many preterm and low-birth weight babies as women getting at least the minimum daily requirement. (*Science News*, vol. 149, April 13, 1996, page 230, citing T.O. Scholl, et. al., *American Journal of Clinical Nutrition*, April, 1996.) A similar finding was reported in the Centers for Disease Control (CDC) report titled, "Folate Status in Women of Childbearing Age, by Race/Ethnicity --- United States, 1999--2000 (see the CDC web page at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5136a2.htm> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, September 13, 2002, 51(36); 808-810).

3. Fetal Alcohol Syndrome

Fetal alcohol syndrome (FAS) includes physical birth defects such as mental retardation and central nervous system dysfunction. The web page of the National Organization on Fetal Alcohol Syndrome reports that FAS is the leading cause of mental retardation, and that pregnant Black women are less likely to report that they were told to stop drinking by their doctor (see, for example, <http://www.nofas.org/what.htm>). Based on small numbers, the fetal alcohol syndrome rate for blacks was five times that of whites (1.1 versus .2). (See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/wk/mm5120.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, May 24, 2002, 51(20); 429-452.)

However, alcohol use among Black 12th graders is reported to be one-third that of whites (Federal Interagency Forum on Child and Family Statistics, 2001, *America's Children: Key*

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National Indicators of Well-Being 2001. Federal Interagency Forum on Child and Family Statistics, Washington, DC: US Government Printing Office, Table BEH2 on page 98).

4. Maternal Iron Deficiency

Iron deficiency might cause low birthweight and preterm delivery. The prevalence of iron deficiency is twice as high in Black and Mexican-American females (19%) as compared to non-Hispanic white females (10%). (See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/wk/mm5140.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, October 11, 2002, 51(40); 897-920, especially Table 1 on page 899.)

5. Effects of Mother's Mental Stress on Fetus

There is some evidence that intense mental stress during pregnancy can affect a baby's development and result in hypertension as an adult. (See *Science News*, volume 161, May 11, 2002, page 302.) Studies on animals indicate prenatal maternal distress impairs long-term learning (DiPietro, J.A., 2004, The role of prenatal maternal stress in child development. *Current Directions in Psychological Science*, 13, 71-74).

6. Hunger

The risk of having a child who develops schizophrenic in adulthood is twice as great for women who are severely hungry during early pregnancy (*Science News*, August 6, 2005, page 84).

7. Other Prenatal Experiences and Organic Disorders

Schizophrenia may be linked to prenatal exposure of mothers to flu (*APA Monitor*, April, 1996, page 7). It may be that there are prenatal causes of attention deficit disorder and learning disabilities (this is plausible if these are borderline organic illnesses), which in turn could contribute to group differences in measured cognitive ability.

Postnatal

8. Premature and Low-Birth Weight Babies

The rate of premature births for Blacks is about three times that for Whites. Suspected causes of higher rate among Blacks include genetic differences, smoking and other harmful prenatal experiences, and less prenatal health care. ("Current issue of" *The New England Journal of Medicine* as cited in the *New York Times*, July 1, 1996, page B6.) In New York City, Black infants are more than twice as likely to be born with low birth weight than White infants (J. H. Lii, *New York Times*, December 6, 1997, page A21; Federal Interagency Forum on Child and Family Statistics, 2001, *America's Children: Key National Indicators of Well-Being 2001*. Federal Interagency Forum on Child and Family Statistics, Washington, DC: US Government Printing Office, Table Health4 on page 90). Teenage mothers are more likely to have premature and low birth weight babies, due in part to late, irregular or inadequate prenatal health care. Premature and low birth weight babies are more likely to suffer from mental retardation, blindness and other serious health disorders. (*Science News*, May 27, 1995, page 333; and J. H. Lii, *New York Times*, December 6, 1997, page A21.) Low-birth weight, premature babies show more neurological problems, cerebral palsy, and other chronic illnesses, and lower IQ later in life when studied within socioeconomic group (*Science News*, February 16, 2002, pages 109-110).

9. Iron Deficiency

Iron deficiency has deleterious effects on work capacity and on motor and mental development in infants, children, and adolescents. The prevalence of iron deficiency is twice as high in Black and Mexican-American females (19%) as compared to non-Hispanic white females (10%). (See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/wk/mm5140.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, October 11, 2002, 51(40); 897-920, especially Table 1 on page 899. No data were reported for males.)

10. Lead Poisoning, Delinquency and Health Problems

Children with high lead concentrations in their blood are more likely to become delinquent (both before and after controlling for the IQ's of the mothers). (*Science News*, February 19, 1996, page 86.) Also, lead seems to pass from mother to fetus. (Susan Gilbert, *New York Times*, June 18, 1996, page C7.) Blacks are disproportionally exposed to lead in deteriorating, inner city homes. There is evidence that such an increased exposure to lead might account for some of the

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higher risk of hypertension in Black people in the United States. (K. Fackelmann, *Science News*, June 15, 1996, page 383, citing two articles in the *Journal of the American Medical Association*, April 17, 1996). New York State requires all children aged 1 and 2 to be screened by their pediatricians for lead exposure. Only about half of such children are actually screened, and of those tested, close to 20,000 have elevated levels of lead in their blood. (E. S. Fein, *New York Times*, September 20, 1996, page B5.) In February 2004 the District of Columbia Department of Health sent a letter to residences with lead water service pipes recommending that young children and pregnant and breast-feeding women not drink unfiltered water. (See the CDC web page at <http://www.cdc.gov/mmwr/pdf/wk/mm53d330.pdf> which reproduces *Morbidity and Mortality Weekly Report Dispatch*, March 30, 2004, 53(50), 1-3.)

A CDC report dated 12/22/2000 shows that elevated blood lead levels is widespread in young children in the USA. An average of 7% of all children have elevated blood lead levels (which they define as >10 $\mu\text{g}/\text{dL}$). This percentage varies widely from county to county within the states, to a high of over 25% of the children in at least two counties (in Ohio and Wyoming, based on more than 200 children sampled in each county). This report does not provide breakdowns by race or ethnic group. (See the CDC web page at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4950a3.htm> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, December 22, 2000, 49(50);1133-7.)

There is evidence that Black children may be more seriously affected than white. Over 16% of children living in cities with over a million people and in homes built before 1946 have elevated lead levels (1997 National Health and Nutrition Examination Survey NHANES, as cited in <http://www.emedicine.com/emerg/topic293.htm>). This report shows a lead poisoning rate of 21.9% among black non-Hispanic children living in homes built before 1946, a rate of 13.7% in those living in homes built 1946-1973, and a rate of 3.4% in those living in homes built subsequent to 1973, as compared to 5.6%, 1.4% and 1.5% among similarly situated white children, respectively. Another study reported the mean blood lead levels differ by 20% at the 90th percentile for Blacks as compared with the 90th percentile for whites (the CDC report CAS no. 7439-92-1, reproduced on the CDC web page at: <http://www.cdc.gov/nceh/dls/report/results/Lead.htm>, which cites: Pirkle JL, Kaufmann RB, Brody DJ, Hickman T, Gunter EW, Paschal DC, Exposure of the U.S. Population to Lead,

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1991–1994, *Environ Health Perspect*, 1998;106:745-50.) Additionally, the director of the National Institute of Environmental Health Sciences, Kenneth Olden, was quoted as saying that most children with lead-induced damage are poor, African-Americans, and living in deteriorated housing in big cities (Drug Treatment of Lead-exposed Children Does Not Improve Psychological Test Scores, *Science News*, May 19, 2001).

In the Dorchester neighborhood of Boston, 50% of the 649 children tested were diagnosed with “dangerously high levels of lead in their blood.” (Dannen, L. (2005) Dorchester kids test highest for lead levels, *Metro*, December 2-4, 2005; perhaps also available at metropoint.com.)

Blood lead levels in young children of less than 5 micrograms per deciliter, once thought to be benign, now seem to have clear deleterious effects on cognition (Even Low Lead In Kids Has A High Cost, *Science News*, May 5, 2001, page 277).

Children of mothers with high levels of lead poisoning can show deleterious effects, and if these offspring are tested as older children they may not show elevated blood levels, because lead levels in blood go down with time without continued exposure to lead (K. Johnson, *New York Times*, September 30, 2003, pages A25, 27, especially page 27).

11. Severe Dehydration

Severe dehydration kills 900,000 children annually in poor countries (N. Seppa in *Science News*, October 25, 1997, page 23). Presumably many more are ill in this fashion but do not die. Very severe cases can cause clotting in the brain. (I do not know whether these clots have an affect on cognitive ability, or whether less severe cases have any effect on cognitive ability, but they might.)

12. Exposure to Drugs and Drug Addiction

Prenatal exposure to cocaine results in offspring with higher level of aggression and more behavior problems, especially under stress. There is mixed evidence concerning the effect of prenatal exposure to cocaine on IQ and learning ability. (B. Azur in the *APA Monitor*, December, 1997, page 14). However, Black 12th graders are reported to have somewhat less use

of illicit drugs than white (Federal Interagency Forum on Child and Family Statistics, 2001, *America's Children: Key National Indicators of Well-Being 2001*. Federal Interagency Forum on Child and Family Statistics, Washington, DC: US Government Printing Office, Table BEH4 on page 99).

13. Postnatal Exposure to Pollutants

Adults with long-term exposure to PCBs in their diet show memory deficits, although no deficits in abstract reasoning or visual attention (S.L. Schantz of the University of Illinois in Urbana-Champaign, cited by J. Raloff, Memory Problems Linked to PCBs in Fish *Science News*, volume 159, March 16, 2001, page 374.) This may differentially affect Blacks, if their diet contains more fish from polluted lakes and rivers (see the similar item under prenatal exposure to pollutants for more details on pollutants). (Perhaps related to low income. Need reference.)

Lifelong residents of Mexico City have lower cognitive ability scores, on average, than peers from a less polluted city (Calderon-Garciduenas et al. in *Brain and Behavior*, cited in *Science News*, volume 174, November 8, 2008, page 18.)

14. Postnatal Exposure to Heat

Blacks are 3.5 times more likely than whites to die due to exposure to excessive heat. Permanent neurologic damage is seen in 17% of the victims of heatstroke. Air conditioners but not fans protect against heat-related deaths. (See the CDC web page at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5029a3.htm> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, July 22, 2001, 50(29):623-626.) Is it possible that subclinical heat exposure has an effect on cognitive ability?

15. Iodine Deficiency

“Mild iodine deficiency has been reported to reduce intelligence quotients (I.Q.) By 10-15%” (Maberly, 1994, *Ann Review of Public Health*, 15:227-301, as reprinted at <http://www/shp.emroy.edu/PAMM/iodine.htm>, downloaded February 4, 2009). This is major problem in third world nations.

16. Effects of Early Poverty

Poverty early in life is more predictive of school achievement at age 18 than poverty later in life. Asthma and obesity is more prevalent among children living in poverty. Lower socioeconomic status appears to have a sizeable effect on who gets sick and on mortality beyond poverty and lack of access to healthcare (see the section below on Beyond Inequality in Health Care). (See Herbert, R., 2003, "In sickness or in Wealth," *APS Observer*, November 2003, pages 30, 39-42.)

17. Long-Lasting Effects Stress

Poverty is stressful. The effects of stress on the stress response system can be seen even 40-50 years after the stress, as shown my research with Holocaust survivors. (See Herbert, R., 2003, "In sickness or in Wealth," *APS Observer*, November 2003, pages 30, 39-42.)

Severe stress during childhood can cause changes in the hippocampus, a brain area involved with memory and emotion (*Pediatrics*, March 2007, as quoted by S. Gopal, *Boston Globe*, March 5, 2007, page C4).

Economic and Socioeconomic

Many possible factors are related to or may be categorized in terms of economic and socioeconomic status.

Healthcare

18. Poor Health: Asthma in the Inner City

On December 11, 1997, Hillary Clinton inaugurated a project to fight asthma in the inner city. In the last 20 years the number of children hospitalized for asthma has increased by a factor of five, and is particularly prevalent in the poorer households of New York City, probably due to the high level of allergens and the lack of accessible medical care. This seems to be one of the major health problems confronting poor urban neighborhoods. (J. H. Lii, *New York Times*, December 12, 1997, page A37, NE edition). From birth to age 4 and from age 15 to 24, Blacks were six times more likely to die of asthma than Whites. It may indicate and reflect, in part, poorer access to medical care. (NY Times, May 3, 1996, page A18, citing a report of the Center for Disease Control.) Blacks report a 20% higher incidence of asthma than whites, and the

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poorest families report twice the incidence of asthma as the wealthiest families. (Also, women report an 80% higher incidence of asthma as compared with men.) (See the CDC web page at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5032a3.htm> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, August 17, 2001, 50(32);682-6.) It may be that poorer, Black neighborhoods are more likely to be home to polluting manufacturing plants (see section below on “Environmental Injustice”). Of children in families with annual household income of \$35,000 or less 15% have asthma, and this figure rises to 20% among African Americans (*Getting There, Getting Care: A Child Health Transportation Agenda*, July, 2001, The Children’s Health Fund; New York, NY). Asthma is an environmental disease, related to the outdoor and indoor air we breathe. Asthma is the most common chronic disease of children in this country (Centers for Disease Control, as quoted in K. Atkins, *Boston Globe*, July 11, 2001, page A3).

Medical researchers at Harlem Hospital report that in central Harlem, 26% of children have asthma (as cited in R. Rothstein, “Students in a Fog” which appeared in the *New York Times*, April 25, 2003, page A33, YT edition.)

19. Poor Health: Tuberculosis

The rate of tuberculosis is 8 times as high for blacks as for whites (and 6 times as high for Hispanics as compared to whites). (Centers for Disease Control study as quoted in the *New York Times*, January 25, 2002, page A19, YNE edition.)

20. Poor Health: Intestinal Worms and Mental Performance

There is some evidence that heavy loads of hookworm, whipworm, and roundworm cause physical and mental impairment, and working memory has even been suggested as an indicator of the harmful presence of worms (Watkins, W. E. & Pollitt, E., 1997, page 184, "Stupidity or Worms": Do intestinal worms impair mental performance. *Psychological Bulletin*, vol 121, pages 171-191). [This may be more applicable to international populations. Need reference on prevalence in this country.]

21. Poor Health: Cerebral Malaria

Cerebral malaria is widespread in the tropics and can lead to long lasting neurological and

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neuropsychological deficits (Boivin, M.J. 2004, "In Africa: Evaluating the Neuropsychological Effects of Cerebral Malaria in Ugandan Children". *APS Observer*, vol 17, pages20-22). [This seems to pertain to international populations, but perhaps there is some immigration. Need to check is there is such immigration.]

22. Poor Health: Effects of Stress

There is some evidence that Blacks suffer higher rates of disease due to the cumulative effects of stress, especially stress due to discrimination (*Journal of Health Psychology*, vol 2, No. 3) as cited in (*APA Monitor*, December, 1997, page 8.) There is a body of literature which suggests a link between chronic stress and susceptibility to infectious disease (see Schaubroeck, J, Jones, JR, Xie, JL (2001), Individual differences in utilizing control to cope with job demands: Effects on susceptibility to infectious disease, *Journal of Applied Psychology*, 86, 265-278). The link between stress and susceptibility to the common cold has been demonstrated with a classic experimental design (see Anderson, C., 2003. Social stress and support factors in susceptibility to the common cold. *APS Observer*, 16, 13.) This might contribute to differences in sick leave usage for blacks and whites, and in turn to differences in reported overall job performance.

Racial discrimination contributes to psychiatric symptoms among blacks beyond such other factors as age, gender, education, social class, and generic stressors (Klonoff, E.A., Landrine, H. & Ullman, J.B. 1999, Racial Discrimination and Psychiatric Symptoms Among Blacks. *Cultural Diversity and Ethnic Minority Psychology*, 4, 329-339). Race related stressors contribute substantially and uniquely to psychiatric distress, such as post-traumatic stress disorder (C.M. Loo et al., 2001, Measuring exposure to racism: development and validation of a race-related stressor scale for Asian American Vietnam veterans, *Psychological Assessment*, 13, 503-520). Although Asian Americans were the subject of this study, the authors cite earlier research on Blacks (e.g., E.A. Klonoff, H. Landrine, & J.B. Ullman, 1999, Racial discrimination and psychiatric symptoms among Blacks, *Cultural Diversity and Ethnic Minority Psychology*, 5, 329-339).

Some suggest that lifelong stress causes release of hormones which weaken the uterus, leading to premature delivery. (R. Rothstein, *New York Times*, February 6, 2002, page A20).

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High blood pressure is seen in 35.9% of blacks, as compared with 23.9% of whites. (See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/wk/mm5121.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, May 31, 2002, 51(21); 459.)

Chronic stress can cause illness as well as death, and a likely biological mechanism involves a certain blood chemical (see CNN.com.health, July 1, 2003 , “Study reveals how stress can make you sick,” <http://www.cnn.com/2003/HEALTH/07/01/stress.ills.ap/index.html>, citing this week’s issue of Proceedings of the National Academy of Sciences).

23. Poor Health: Effects of Diet

The CDC reported that black men have higher rates of prostate cancer incidence and mortality than white men, and that some studies indicate that a healthy diet might reduce the risk of prostate cancer. (See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/rr/rr5311.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, *Indicators for Chronic Disease Surveillance*, September 10, 2004, 53, especially Indicator 29.)

24. Poor Health: Relationship to Socioeconomic Status

Across the range of socioeconomic Status (SES) lower SES is associated with poorer health, such as cardiovascular disease, arthritis, diabetes and respiratory diseases. This may be due, in part, to lower SES people being: exposed to more environmental toxins, working in more dangerous environments, living in more crowded conditions. (See Adler, N. & Snibbe, A. 2003 The role of psychosocial processes in explaining the gradient between socioeconomic status and health. *Current Directions in Psychological Science*, 12, 119-123.)

25. Hypertension and Cognitive Functioning

As just stated, high blood pressure is seen in 35.9% of blacks, as compared with 23.9% of whites. (See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/wk/mm5121.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, May 31, 2002, 51(21); 459.)

Hypertension also results in lower levels of cognitive functioning, as shown on various types of tests, including attention, learning, psychomotor and perceptual (Waldstein, S.R., 2003,

“The relation of hypertension to cognitive function,” *Current Directions in Psychological Science*, 12, pages 9-12) .

26. Poor Health: Mercury Exposure

Mercury is used by people who practice some Afro-Caribbean religions, and is used by some immigrants from the West Indies and Latin America who believe it brings good luck. Exposure can affect the nervous system and permanently harm children. A study by Clyde Johnson at CUNY last year showed that, in three boroughs of New York, 44% of people from the Caribbean, and 27% of people from Latin America said they used mercury in their homes or cars (M. Ojito, *New York Times*, December 14, 1997, page 53, NE edition). Many shops in New York City that cater to the Hispanic community sell over-the-counter remedies that contain mercury (Perez-Pena, 2003, “Powder cure is dangerous, officials say”, *New York Times*, Nov 6, 2003, page A28).

27. Inequality in Dental Care

Most (80%) of tooth decay in the nation's children (aged 5-17) occurs in just one-quarter of the children in that age group. Nearly 40% of tooth surfaces in Black and Mexican American children were decayed and 40% of those had not been filled. This may be contrasted with 14% of tooth surfaces decayed in non-Hispanic White children, with over 80% of those decayed surfaces properly filled. The difference is attributed to differences in income and insurance. (From the third National Health and Nutrition Examination Survey, partial results in the Journal of the American Dental Association, quoted in *Science News*, volume 149, March 16, 1996, page 165.) Tooth decay is one of the most common childhood chronic diseases, but is largely preventable by use of dental sealants. One large study in Ohio revealed is a large disparity between Blacks and whites on the prevalence of use of dental sealants (18% vs 30%). See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/wk/mm5034.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, August 31, 2001, 50(34); 736-738.) (One may ask whether this difference in dental health contributes to poor nutrition overall during formative years, and what type of effect this poor nutrition may have on cognitive abilities.)

An inequity in retention of teeth is seen for adults. In adults over the age of 65, 53% of

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white and 30% of non-Hispanic blacks report having lost fewer than 6 of their teeth. (See the CDC web page at: <http://www.cdc.gov/mmwr/PDF/wk/mm5250.pdf> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)* December 19, 2003, 52(50), 1221-1244, especially table 2 on page 1228.)

28. Inequality in Health Care

In New York City, Black infants have the highest rate of mortality, 13 deaths per 1,000 live births, almost twice that of White infants. (J. H. Lii, *New York Times*, December 6, 1997, page A21.) Rate of infant death is a commonly accepted measure of the level and quality of health care in a population. This may be due to the differences in access of Black and White babies to hospital care (report commissioned by New Jersey Governor Whitman as cited in *Emerge*, November, 1997, page 24).

A study of very low birth weight infants in Delaware showed an infant mortality rate 42% higher for blacks as compared to non-Hispanic whites for 1998-2000, a larger disparity than seen for 1994-1996, the only ranges of times reported (Centers for Disease Control and Prevention, 2003, *MMWR Weekly Report*, September 12, 2003, 56(36), esp. Table 3 on page 865, also available at <http://www.cdc.gov/mmwr/PDF/wk/mm5236.pdf>).

Some researchers have suggested that infectious agents, especially during development of the fetus or in early childhood, may be responsible for some mental disorders. Little is known about this, but there is some evidence of a link between obsessive compulsive disorder and attention deficit disorder and strep infections. There are two groups studying PANDAS: Pediatric Autoimmune Neuropsychiatric Disorders Associated with Streptococcal Infections (Questions and Answers: The Nature of Disease, in *Newsweek*, July 18, 2001, an interview with Dr. Ian Lipkin.)

More than 10% of children in families with annual household income of \$35,000 or less lack health insurance, and, depending on income level, from 18 to 36% of the adults in these households lack health insurance (*Getting There, Getting Care: A Child Health Transportation Agenda*, July, 2001, The Children's Health Fund; New York, NY).

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The Census Bureau reports that 18.5% of white Americans lack health insurance, compared with 9.7% of non-Hispanic white Americans (as cited in Robert Pear, *The New York Times*, “Number of Uninsured Drops for 2nd Year,” September 28, 2001, page A19.)

According to the US Census Bureau, Blacks who worked full time were about twice as likely to be without health insurance for all of 2001 as white, non-Hispanics (19% vs 10%). Although black and white poor who worked fully-time were about equally likely to be without health insurance (26.2% and 25.5 %) Hispanic poor who worked fully-time were much more likely to be without (43.7%). (See R. Pear, *New York Times*, September 30, 2002, page A21.)

People with aneurysms in the abdominal aorta who have no health insurance are twice as likely to suffer a rupture as people with medical insurance. The study author suggests this is due to lack of contact with the medical system. (See “Deadly Twist on Bursting Vessels, *New York Times*, September 30, 2003, page D7.)

Cancers spread more aggressively in blacks than in whites, and so there are lower cancer survival rates for blacks (52% versus 63% five year survival rates). A study published 4/24/02 in the *Journal of the American Medical Association* found that differences in medical care and the stage of the disease when presented explain the disparity. (*New York Times*, April 24, 2002, page A16.)

Blacks have substantially higher rates of cancer than whites, overall. In 2000 the cancer rates for black men and women were 343.3 and 194.3, respectively, as compared to the rates for white men and women of 244.6 and 166.4, respectively, although the differences in rates are often to be smaller than 10 years ago (CDC Surveillance Summaries, June 4, 2004 / 53(SS03);1-108, also available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5303a1.htm>).

A study of patients in managed healthcare considered four widely accepted standards of care (screening for breast cancer, eye exams for patients with diabetes, beta-blocker use after myocardial infarction, and follow-up after hospitalization for mental illness) and found that Blacks receive proper care significantly less often than whites, even after adjusting for several potentially relevant factors (Schneider, EC, Zaslavsky, AM, Epstein, AM. (2002) Racial

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disparities in the quality of care for enrollees in Medicare managed care. *JAMA*, 287(10) 1288-1294, as cited in Zurlinden, J. (2002) Barriers to Hospice Care for African-Americans, *Nursing Spectrum*, 6, 18-19).

The Institute for Medicine reported a review of 100 studies which showed Blacks receive notably poorer medical care than whites even among people matched on income, insurance coverage, and medication conditions (L. Villarosa, *New York Times*, September 23, 2002, page E1 and E8).

There is sizeable difference in rate of influenza vaccination for blacks and whites (51% vs 70%) for people over 65, the only group for which summary statistics are reported (Centers for Disease Control and Prevention. Surveillance Summaries, August 22, 2003. MMWR 2003:52(No. SS-8), esp page 69, also available at <http://www.cdc.gov/mmwr/PDF/ss/ss5208.pdf>). If this difference is seen in the working population in general, it might adversely affect job performance evaluations for blacks.

Much of the March/April issue of the Journal of Health Affairs concerns health care discrepancies between races (see Schmid, R.E. "Health care faulted in rate mortality gap. *Boston Globe*, March 10, 2005, page A17).

Black women being treated for breast cancer wait an average of 3 months longer than white women for doctors to test and begin treatment on their cancer (see Fox, M. "Cancer care found to vary by region, race. *Boston Globe*, May 16, 2005, page A6).

Of heart attack victims taken to community hospitals not equipped to perform bypass and angioplasty procedures, blacks are transferred to hospitals that have these capabilities at a rate 60% that of whites (Bakalar, N. "Care after Heart Attack Appears less than Equal. *The New York Times*, March 21, 2006, page D6.)

29. Beyond Inequality in Health Care

A study of civil servants in England showed that mortality increased with each step down the civil service ladder, despite equal access to England's National Health Service. Lower

socioeconomic status appears to have a sizeable effect on who gets sick and on mortality beyond poverty and lack of access to healthcare. (See Herbert, R., 2003, "In sickness or in Wealth," *APS Observer*, November 2003, pages 30, 39-42.)

30. Health Related Absenteeism and School Performance

A program to improve health care in elementary school students, that treated problems like asthma which keep students from attending school, resulted in reduced absenteeism and increased scores (R. Rothstein, *New York Times*, September 11, 2002, page A30). One study estimates that each serious illness increases the chances of a student being in the lowest one-fifth of their class by 7%. (a 2002 report for the National Bureau of Economic Research cited in R. Rothstein, *New York Times*, September 11, 2002, page A30).

31. Inequality in Healthcare Increasing, Not Decreasing

As mentioned above, rate of infant death is a commonly accepted measure of the level and quality of health care in a population. In Boston, babies born to Black parents had an infant mortality rate (13.6 per thousand) more than four times that of white babies. (Smith, S. "Infant Mortality of Blacks on Rise. *Boston Globe*, February 27, 2002, page A1.) Nationwide it is more than twice that of whites (a 2002 CDC report cited in R. Rothstein, *New York Times*, February 6, 2002, page A20).

32. Inequality in Immunization of Pre-School Children

About 22% of pre-school children nationwide have not had full immunization. This figure rises to as high as 38% in heavily minority Detroit, and 35% in heavily minority Newark, New Jersey. (See the CDC web page at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5030a1.htm> which reproduces *Morbidity and Mortality Weekly Report (MMWR Weekly)*, August 3, 2001, 50(30);637-641.) (Detroit is 82% black according to the Economics and Statistics Administration of the U.S. Census Bureau report issued May 2001, *Demographic Characteristics 2000 Census of Population and Housing Michigan*.) Since this study was done using randomly dialed telephone numbers, it may well be that poorer households have lower vaccination rates.

33. Inequality in Healthcare, Controlling for Income

After controlling for income level, employment, educational level, and severity of asthma, the medical care given to Blacks falls below the national guidelines for asthma treatment proportionally more often than treatment given to whites, according to researchers from John Hopkins. (Research by Dr. Jerry Krishnan in the Archives of Internal Medicine as described in E. Nagourney, *New York Times*, July 10, 2001, page D8.)

Criminal Justice

34. Jail Experience

Nationwide, nearly a third of Black men between the ages of 20 and 29 are in prison, jail, or on probation or parole, up from 25% five years ago. Blacks and Hispanics make up almost 90% of all inmates serving time in state prisons. (*Boston Herald* on October 5, 1995, page 32.) At the very least, this incarceration takes away time from much academic and work experience.

35. Bias in the Criminal Justice System

There is some hard evidence of bias in the criminal justice system in the form of lies, brutality, and questionable police work. For example, 4 Black men were released from prison and charges dropped or dismissed after serving 18 years in prison based on new DNA testing which proved the semen found at the scene of a double murder/rape in 1978 could not have come from any of these men and on a confession by a prisoner convicted in another case. The US Justice Department reported that 28 men convicted of rape have been freed nationwide in the last few years due to new evidence based on DNA testing, and 48 people released from death row since 1973 due to significant evidence of their innocence. (Don Terry, *The New York Times*, June 15, 1996, page 6, July 3, 1996, page A14.) The City of Philadelphia will pay \$1 million to settle a lawsuit brought by a Black minister who spent 3 years in jail after conviction for running a cocaine ring out of her house. Three city police officers later admitted to the FBI that they framed her! There are dozens of cases of wrongful imprisonment which have been settled involving 10 current and 2 former police officers in Philadelphia, and more cases are expected to come to light. (*New York Times*, August 17, 1996, page 20.) The 1994 New York City Mollen Commission report found considerable police corruption and brutality in a Harlem police precinct. (*New York Times*, August 17, 1996, page 23.) A Federal jury decided that the City of New York must pay \$500,000 to a mother and son who were beaten in 1991 by rogue police

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officers in the "Dirty 30," a police precinct in Harlem. (*New York Times*, August 24, 1996, page 27.) The higher conviction rate for Blacks may be an ethnic injustice. At least 26 police officers have been convicted in Federal and state courts of such things as dealing in drugs, stealing confiscated money, and breaking into property without a search warrant. (C. Krauss, *New York Times*, September 10, 1996, page B3.) There have been multiple cases of police corruption and racial bias in the Philadelphia Police Department in poor, inner-city neighborhoods with predominantly Black and Hispanic residents. The city has settled with 42 plaintiffs, paying a total of about \$3.5 million. Hundreds of convictions have been overturned, and a court review of 1,500 arrests is underway. (M. Janofsky, *New York Times*, September 5, 1996, page A14.) In Dupage County (a rich suburb of Chicago) 3 former County assistant prosecutors and 4 sheriff's deputies were charged with conspiracy and obstruction of justice in the wrongful murder convictions of two young Hispanic men who spent almost 10 years on death row before being released from prison last year, after an investigator admitted he had lied in earlier testimony about important evidence in the case. This type of case (in which law-enforcement officials are charged with fabricating evidence) is almost unheard of, partly because there is rarely strong evidence that prosecutors knowingly use false evidence or testimony. In this case, another man who is serving a life sentence for another murder told his lawyer he was the girl's lone killer (D. Terry, *New York Times*, December 13, 1996, page A18.) In August, 1997 a Haitian immigrant who works as a security guard alleged that he was anally assaulted by a New York City police officer in a NYC police station bathroom using a toilet plunger. A medical examiner said the perforation of his small intestines and injuries to his bladder were consistent with a blunt instrument (D. Kocieniewski, *New York Times*, August 13, 1997, page NE A25.) Reports of new cases of exoneration appear in the news media with regularity. See, for example, the case of a man exonerated by new DNA analysis, after serving 15 years for rape (F. X. Clines, *New York Times*, December 10, 2001, page A14). It has been suggested that police and prosecutor misconduct might be behind at least some of the faulty convictions (J. Wilgoren, *New York Times*, December 6, 2001, page A18). A study released by Columbia University in 2002 describes very high percentages of death penalty cases that had inadequate legal defense and showed misconduct by police, judges, and juries (as cited by B. Herbert, *New York Times*, YT edition, April 24, 2003, page A31).

A judge in the Federal District Court in Boston wrote in a decision that over 100 people on

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death row have been exonerated based on DNA and other evidence (see Liptak, A., *New York Times*, YT edition, August 12, 2003, page A10). If gross injustice can be seen in cases involving the death penalty, it is likely that lesser cases have high rates of incorrect and completely unjustified guilty verdicts. So it is likely that some of the higher crime rates reported for blacks and the higher rate of incarceration of blacks reflect not higher rates of commission of crime but rather the combination of unjustified guilty verdicts and racial profiling (see, for example, the section in this document on *Racial Profiling for Traffic Stops*).

A group named the Innocence Project identifies police and prosecutorial misconduct as major causes of wrongful convictions in the first 70 exonerations due to new analysis of DNA evidence (as of 4/27/04 this was posted on URL: <http://www.innocenceproject.org/causes/index.php>).

In 2004 it was discovered that a police crime laboratory official in Houston, Texas gave false testimony that helped convict a Hispanic man of rape in 1987. A panel of experts says potentially over 10,000 previously decided court cases will need to be reviewed. (Liptak, A. & Blumenthal, R. New Doubt Cast on Crime Testing In Houston Cases, *The New York Times*, August 5, 2004, Page 1).

36. Unequal Legal Defense at Court

More than 20% of the public defenders average more than 300 cases per year (Fritsch, J. & Rohde, D. "For the poor, a lawyer with 1,600 cases." *New York Times National*, 1, April 9, 2001). An indigent defendant assigned to a private lawyer is allowed 30 hours of work for a maximum of \$40/hour, for a total fee of \$1,200. A paying client would pay \$15,000 to \$50,000 to handle an appeal (Fritsch, J. & Rohde, D. "On appeals, the poor find little leverage". *New York Times National*, 1, April 10, 2001). In a county in Mississippi, two lawyers are paid \$16,200 a year to defend indigent defendants, including hearings, trials, appeals and all other expenses and overhead. The number of serious cases ranges from 20 to over 45 a year in the past few years. That comes to \$1,620 per case in the lightest year and less than \$720 a case in heavier years (Liptak, A. "County Says It's Too Poor to Defend the Poor". *New York Times New England Final*, A1 and A14, April 15, 2003).

37. Unfair Jail Sentences; Criminal Justice System

To what extent are longer and more frequent jail sentences for Blacks due to poorer legal representation?

38. Racial Profiling for Traffic Stops

The traffic stop is the most frequent type of interaction between police and citizens. Racial profiling for traffic stops and differential treatment during those stops has an economic effect. For example, citations cost more than warnings immediately, and also result in surcharges on car insurance premiums. It also has a non-economic effect, in terms of loss of respect for the local police which in turn may lead to less community cooperation with police on public safety problems. (McDevitt, J. & Bailey, L. "Looking deeper at racial profiling" *Boston Globe*, August 2, 2003, page A19.)

Proportionally more blacks than whites in Massachusetts are given tickets rather than warnings when pulled over for speeding. For the most common offense, driving 45 in a 30 MPH zone, whites were ticketed 31% of the time, blacks were ticketed 49% of the time (Dedman, B., and Latour, F. "Race, sex, and age drive ticketing" *Boston Globe*, October 20, 2003.)

Education

39. Unequal Funding for Schools

Across the country we can see poorly-funded, inner-city schools (with outdated equipment and books, leaking roofs, cockroaches, etc.), mainly populated with minority students, surrounded by suburbs with well-funded schools (with well-equipped laboratories, a computer for every child, etc.), mainly populated with non-minority students. (W. Goodman, *New York Times* September 12, 1996, page C18, citing, in part, J. Kozol, *Savage Inequities*, 1990). Inequities often result when local school systems are funded with local real estate taxes; wealthy school districts then have better funded schools. The state of disrepair of the Washington, D.C. schools (including 6 schools which could not open due to fire code violations) is an example of this inequity (K. J. McLarin, *New York Times*, September 11, 1996, page D18). Recommendations made by Judge King of Superior Court in New Jersey suggesting the state spend an additional \$312 million on 28 urban school districts also reflect this (A. Goodnough, *New York Times*, January 23, 1998, page A23). Unequal funding for schools has been the case for many years.

(See page 42 in Ogbu, J. U. (1986). "The Consequences of the American Caste System" in *The School Achievement of Minority Children: New Perspectives*, ed. U. Neisser, pp. 19-56. Hillsdale, NJ: Erlbaum.) A class action lawsuit in California charges that schools with nonwhite students tend to be in poor condition and have untrained teachers and inadequate resources (J.D. Glater, *New York Times*, April 18, 2003, page A12, YT edition). I suspect there are similar differences with respect to public library facilities. [need reference]

In studying the pervasive socioeconomic status differences in children's reading, a large study found school and neighborhood conditions contribute to socioeconomic status differences in rate of reading beyond and to a greater extent than of family characteristics (Aikens & Barbarin, 2008, Socioeconomic differences in reading trajectories: The contribution of family, neighborhood, and school contexts, *Journal of Educational Psychology*, 100, 235-251).

40. Segregated Schools

In Boston, 82% of the public school students are non-White, with about half Black, and a quarter Latino. (*Boston Globe*, July 16, 1995, page 8.) In Hartford, 94% of the public school students are minority. (*New York Times*, August 10, 1996, page 28.) This level of segregation might lead to a perpetuation of conditions which support ethnic group differences in academic achievement and measured academic ability. A study by Harvard's Civil Rights Project reports a return toward segregation (Harvard Civil Rights Project, 2001, *Schools More Separate: Consequences of a Decade of Resegregation*, as cited by Schemo, D.J. *New York Times*, July 20, 2001, page A12).

A nationwide study found that in the largest school districts segregation is increasing rather than decreasing (CNN, Study: School districts 'resegregating'; Public institutions increasingly divided by race, August 9, 2002, <http://fyi.cnn.com/2002/fyi/teachers.ednews/08/09/desegregation.study.ap/index.html>).

41. Quality of Education in Inner City Schools

In Chicago one in every 10 full time teachers tested since 1988 failed one or more teacher tests of basic skills. Many passed when retested. Teachers who failed at least once were five times more likely to be employed in the neediest schools. (Rossi, R. & McKinney, D. Why are

teacher test scores secret? *Chicago Sun-Times*, September 7, 2001).

In Denver, a new head of the school system sparked a relatively quick improvement in measured academic achievement, with no change in student body but some change in teaching staff. [Need reference. Approx 2000.] Perhaps teachers in inner city schools have lower expectations of their students, or are not provided adequate materials or training. (See section below on Grade Inflation and Low Expectations.)

In Dallas, when a philanthropist funded a substantive AP (Advanced Placement) program in a city school with mainly low income students, and the students and teachers were given substantial monetary bonuses for high scores on AP exams, students AP test performance went up dramatically in only several years (Mathews, J., 2004, Paying Teachers and Students for Good Scores, *Washington Post*, August 10, 2004, on the web at: <http://www.washingtonpost.com/wp-dyn/articles/A53390-2004Aug10.html>).

42. High Performing Minority and Low Income Schools

Nationwide, more than 1,300 public schools with at least 50% African American or Latino students and at least 50% low income students rank in the top third of all schools in their state on tests of achievement. These schools seem to have characteristics which distinguish their approach to teaching. (C.D. Jerald, 2001, *Dispelling the Myth Revised: Preliminary Findings from a Nationwide Analysis of High-Performing Schools*, published by the Education Trust, Oakland, CA, and available on the web at: <http://www.edtrust.org/main/index.asp>; and R. Ali, 2001, *Dispelling the Myth in California: Preliminary Findings from a Nationwide Analysis of "High-Flying" Schools*, published by The Education Trust West, available on the web at: <http://www.edtrust.org/main/index.asp>).

All 25 sophomores in Codman Academy, a small charter school in Boston which has been open for only three years and serves mainly black and poor students, passed the language arts section of the MCAS, the Massachusetts statewide examination, despite a high failure rate among blacks in the rest of the city of Boston (see Rimer, S., 2003, *New York Times*, December 17, 2003, page A33).

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A 10 year partnership between Clark University in Worcester and an inner-city school has had impressive results. In the past six years it has the highest cumulative MCAS (the Massachusetts high school graduation tests) scores among the state's non-exam urban schools (Schworm, P., 2007, *Boston Globe*, November 22, 2007, pages A1, A8).

43. Violence and Vandalism in Schools

In Los Angeles some students need to plan their school days in order to avoid gang and other violence (Hayasaki, E., 2005, Surviving high school with faith, caution: Teenagers in LA overcome odds to learn, stay safe, *Los Angeles Times*, January 2, 2005. This is time and mental effort that could be spent on studying, if the situation allowed. In Boston, at least one inner city school was thoroughly trashed by the students. A fire fighter was stationed in the school on a full time basis whenever school was in session to deal with the fires set by students. The money spent on educational facilities was squandered by the students. This, in turn, led to lower educational opportunity in that school. (Joel P. Wiesen, personal observation, about 1988.)

44. Linguistic Differences and Schooling

At least some educators feel linguistically diverse students attain lower academic achievement due in part to cultural discontinuity. To the extent that the teachers and students are not speaking the same variant of English, education can suffer. (McLeod, B. Language and Learning, 1994, reviewed by Salvador Ochoa, *Contemporary Psychology*, 1995, page 974.) Cognitive psychology also suggests that translation between first or primary and a second or secondary language is not a simple topic (see, e.g., Heredia, R.R., *Bilingual Memory and Hierarchical Models: A case for language dominance*, Current Directions in Psychological Science, 1997, pages 34-39) and this may support the suggestion that learning in a second language or even a dialect is more difficult than learning in one's primary language. Parents of students report having difficulty communicating with teachers due to lack of familiarity with some of the vocabulary used by teachers (Ogbu, J.U., 1999, Beyond Language: Ebonics, Proper English, and Identity in a Black-American Speech Community, *American Educational Research Journal*, 36, 147-184, especially page 167).

45. Disparate Treatment in Schools

In New York City, a community organization sent volunteers into public schools posing as

parents of prospective students and asking for information about programs for gifted students. Minority "parents" were given less information about programs for gifted students. At one school, a minority parent was told the kindergarten was full while two weeks later a White parent was told to register quickly because the classes were filling up quickly. (*The New York Times*, 4/16/96, page B4, article by Somini Sengupta, and editorial 5/18/96, page 18.)

Public school staff tend to have negative stereotypes of low-income parents and to ignore their efforts to become more involved with the education of their children. (See Ballie, R. (2001) Research Shows Public School Officials Slight Low-Income Parents, *APA Monitor on Psychology*, page 75, citing Lott, B. (2001) Low income parents and the public schools, *Journal of Social Issues*, 57(2).)

46. Number of Toys

From my personal observation, the number and type of educational toys which a household owns varies greatly with family income. Low income homes have few toys, while high income homes have closets and even rooms filled with educational toys. In middle and upper class homes, babies only a few months old may have many hundreds or even thousands of dollars of toys of all description: educational and non-educational, electronic and non-electronic. If educational toys affect educational development, this may be a source of disparity by income.

47. Education Level and Family Income

Family income is a strong predictor of educational level attained. A longitudinal study of 25,000 8th graders showed that 97% of students whose families were in the top 25% in income went on to 2 or 4 year colleges, as compared with 85% of students whose families were in the lowest 25% in income. In addition, 74% of the students in the higher income families went to 4 year colleges as compared with 37% of the students in the lower income families. (Research conducted by National Opinion Research Center under contract for the US Department of Education as reported by William H. Honan, *New York Times National Edition*, page A11, June 17, 1996.)

48. Homework

Homework has increased by 50% in the last 20 years. Parents with limited education are not well equipped to help their children with homework, especially in the older grades. It may be that in this way homework contributes to gaps in academic achievement between low and higher income homes. (R. Rothstein, *New York Times*, May 23, 2001, page A22.)

49. Grade Inflation and Low Expectations

Grade inflation (high grades with low achievement) in schools is counterproductive, resulting in lower motivation and poorer study habits. Grade inflation is the result of low expectations and attempts to please or pacify parents. Grade inflation is particularly seen in schools “with a high proportion of disadvantaged students ... in large cities and poor rural areas.” (Wm. Brainbridge, *Inflating Grades Simply Deflates Education*, *The Columbus Dispatch*, 7/21/2001).

When teachers’ and parents’ values differ, kindergarten teachers rate children as less competent, after statistically controlling for children’s skills and socioeconomic status (Hause-Cram, Sirin, and Stipek, 2003, “When Teachers’ and Parents’ Values Differ: Teachers’ Ratings of Academic Competence in Children From Low-Income Families” *Journal of Educational Psychology*, 95, 813-820).

50. Encouraging Data From New Statewide Testing Programs

Massachusetts has instituted a statewide testing program in the public schools that went live recently. Massachusetts now requires all students to pass math and English tests in order to graduate from high school. The tests are first given in the 10th grade and students who fail are allowed to retake the test each time they are offered statewide (with new questions each time). The passing rate for Black students went from 37% on first taking the test to 86%, after retesting, prior to graduation. (See <http://www.massinsight.org/docs/Taking%20Charge%20Report%20PDF.pdf> which reports data provided by the Massachusetts Department of Education.) This indicates that Black students can indeed pass this type of test at a high rate, when they focus on the material.

51. Encouraging Data on Engineering Students

Blacks comprised 13% of engineering majors in 1992, compared with 6.1% in 1982, and are the only ethnic group to show a net increase in number of engineering majors. This may be due to efforts of the National Action Council for Minorities in Engineering. Dramatic improvements in college achievement in relatively short periods of time shows the promise of these efforts (Adelman, C., 2004, US Department of Education Report, as cited by I. Yoo, 2004, *USA Today*, April 19, 2004, URL: http://www.usatoday.com/news/education/2004-04-19-engineering-usat_x.htm).

52. Methods of Instruction

Some approaches to teaching reading are more effective than others, especially for children at risk for reading failure because of lack of home literacy. But choice of a teaching methodology for reading is highly politicized nationally and other approaches are often used. (Rayner, K., Foorman, B.R., Perfetti, C.A., Pesetsky, D, & Seidenberg, M.S., 2001, How Psychological Science Informs the Teaching of Reading, *Psychological Science in the Public Interest*, 2, 31-74, published by the American Psychological Society, especially page 67.)

Finances

53. Intentional and Unintentional Economic Discrimination

A history of one Black community, in Boston, describes the institutional and situational economic hardship which was true of many cities in the country (Peter Medoff and Holly Sklar, *Streets of Hope*, 1994), as follows. Economic factors led to a long period of difficult economic times for minority citizens: through the 1940s and 1950s, millions [!] of people were displaced from the jobs in southern agriculture and mining by mechanization (page 12). Many of these people moved to cities where they lived in segregated housing. Indeed, policy of the Federal Housing Authority (FHA, founded in 1934) explicitly promoted segregated neighborhoods (pages 14-15). Whites were encouraged to leave these cities by unscrupulous realtors (pages 24-30). Government funds for transportation favored the suburbs over the inner city and mass transit (page 14). With the departure of Whites, and much industry, the municipal and private funds for schools, housing, street repair and business declined, creating noticeable neighborhood decay. Urban renewal often resulted in the destruction of many small minority-owned businesses (page

DRAFT: May be cited

17). "A 1968 National Commission on Urban Problems reported 'tacit agreement among all groups - lending institutions, fire insurance companies, and FHA' to 'redline' inner city neighborhoods, denying them credit and insurance." Thus, inner-city minority communities were starved of economic capital needed to start businesses, fund college education, etc.

On a more individual level, Blacks pay more for new or used cars (Auers, I., 1995 and 1992, cited in Whigham-Desir, M., 1997, "Are You Being Taken for a Ride," *Black Enterprise*, April 1997, page 123). All this contributes to inequality in wealth, with predictable effects on the socioeconomic level of families.

Blacks also pay more for mortgages, according to a report by the Center for Community Change (as cited by S.S. Greenberger, 2002, *Boston Globe*, May 2, 2002, page B9) which says that a third of Blacks with above average incomes get charged high interest on their loans, as compared with 9% of whites.

In February of 2003, Nissan Motor Acceptance Corporation settled with black and Hispanic plaintiffs who claimed they were charged interest rates 30% to 50% higher than whites. This settlement cost Nissan over \$1 million. The plaintiffs claimed that Nissan estimated that Nissan took in over \$100 million in additional interest from blacks and Hispanics (Hakim, D. "California takes aim at dealer bias in car loans" *NY Times*, July 16, 2003, page A11; and http://www.consumerlaw.org/initiatives/cocounseling/content/NYTimes_article.pdf). If blacks and Hispanics are overcharged for large ticket items, this would contribute to a spiral of poverty.

A nationwide study of 50,000 mortgages showed that, even after controlling for down payment and credit scores, black and Hispanic home owners were charged more, on average, than white. See Eckholm, E. (2006) Black and Hispanic Home Buyers Pay Higher Interest rates on Mortgages, Study Finds, *New York Times*, Thursday, June 1, 2006, page A20.

Poor credit history can greatly increase auto insurance premiums. Credit history is one of the factors that go into the "insurance risk score" that more than 90% of insurers use to determine auto insurance rate (Insure.com "12 hidden ways to save on auto insurance" available at MSN Money's <http://moneycentral.msn.com/content/Insurance/Insureyourcar/P35213.asp>, as

of 8/24/03).

54. Economic Inequality: Overall

The economic inequality in the US has been described in the news media as the widest of the major industrialized nations with the top 20% of US households having more than 80% of the wealth (the "most economically stratified of industrial nations" and "Growing more unequal faster than the other industrialized nations," *The New York Times*, April 17, 1995, quoted in *The Jerusalem Report*, June 15, 1995, page 3, letter by Cary Sperling.) The difference in annual income between the most affluent Americans and everyone else is larger than at any time since WWII. The most prosperous 10% of American households held 67% of the country's wealth in 1994 (up from 61% in 1989). (*The New York Times*, June 22, 1996, page 31, article by K. Bradsher.) Average household income was reported as \$43,133 for whites, and the average for Black households as \$29,259 (Blacks are 32% below the overall average - see *Black Enterprise*, July, 1996, page 63.)

General economic well-being, as measured by median net-worth, shows a large disparity. For example, a 1995 national survey found a median net-worth of \$73,500 for non-Hispanic White households, and \$16,500 for all other households (*The New York Times*, February 10, 1998, page A18, article by Richard W. Stevenson).

The poverty rate for blacks is about 2.5 times that for whites. (See *2001 Kids Count Data Book* (2001) Annie E. Casey Foundation, Baltimore, MD, page 14.)

The black-white income gap is growing according to an Associated Press story quoting Julia Isaacs of the Brookings Institute in Washington, DC and three Brookings Institute reports. In 2004 the income of a typical black family was 58% that of a typical white family; and in 1974 the median black income was 63% of white (*Boston Globe*, November 13, 2007, page D6.)

55. Economic Inequality: College Early Admission Application Process

The early admission system has been described as separate and unequal, discriminating against students who cannot afford tuition because early decision programs require students to commit to a single university before financial aid is offered (N. Thompson, 2001, *Boston Globe*,

December 24, 2001, page 1.)

56. Economic Inequality: College Graduates

For married couples where both are college graduates, the average household income is \$87,126 for Whites and \$73,443 for Blacks (average for Blacks is 15% below the average for Whites). However, for college graduates, female-headed households there is a small difference in favor of Blacks, \$43,486 compared with \$42,685 (Blacks are 2.3% above the average for Whites). (*Black Enterprise*, July, 1996, page 63.)

57. Car Ownership

More than a quarter of African-American families with annual household income of \$35,000 or less do not have a car in good working condition, as compared with less than 10% for others. To the extent that proportionally fewer African-American parents own cars, they bear an additional burden in time required for travel, and the more limited geographic area accessible for employment. A national survey of 900 randomly selected parents and guardians of children under 17 years of age found that 20% of children from low income families miss routine doctor's appointments because their parents cannot get them there. Half of the respondents did not have access to public transportation, and that increased to three-quarters in rural areas (*Getting There, Getting Care: A Child Health Transportation Agenda*, July, 2001, The Children's Health Fund; New York, NY).

Significantly fewer black children participate in organized free-time physical activities (24% vs 47%), and significantly more black parents (33% vs 19%) cite transportation problems as a barrier to such activities (Centers for Disease Control and Prevention. "Physical Activity Levels Among Children Aged 9-13 Years - United States, 2002". *MMWR* 2003;52:785-787, available at <http://www.cdc.gov/mmwr/PDF/wk/mm5232.pdf>).

58. Limited Access to Places of Employment

In the Boston area, 71% of all new jobs created from 1990 to 2000 are in the outer suburbs where minorities have limited access. (See Lewis, D.E., 2004, Equity found lacking in Hub workforce; Despite population growth, minorities underrepresented, *Boston Globe*, December 31, 2004.

59. Inefficiency in Purchasing Related to Lack of Capital

Purchasing household furnishings, appliances and utensils of inferior quality may be more expensive, in the long run, than purchasing higher-quality but more expensive versions, but may not be the only option open to lower income households, and these households are disproportionately black.

60. Various Other Laborsaving and Efficiency-Related Topics

Beyond matters of transportation (car ownership) there are other practical matters which may contribute to learning and performance decrements. For example, when the weather is hot sleeping at night without air-conditioning can be difficult. The resulting sleep deprivation can impair performance in school and at work. Probably proportionally fewer black homes are air-conditioned, due to the cost involved.

61. Wealth Gap Is Much Greater than Income Gap and Growing

A 2004 study found the median net worth for whites was more than 14 times that for blacks. From 1996 to 2002 net worth increased by 17% for white households but decreased by 16% for black households to about \$6,000. Net worth for all American households was about \$60,000. (Pew Hispanic Center report as cited in the *New York Times*, October 18, 2004, page A13, titled “Study Says White Families’ Wealth Advantage Has Grown”.)

A 2002 study found a large-scale statistical analysis showed that a two-fold difference in income between blacks and whites underlies a 10-fold difference in total net worth (including equity in homes and major non-housing assets). (See Barsky, R., Bound, J., Charles, K.K., & Lupton, J.P., 2002, Accounting for the Black-White Wealth Gap: A Nonparametric Approach, *Journal of the American Statistical Association*, 97, 663-673.) If various educational and business opportunities are related to net worth rather than net income then the income disparities may be greatly magnified in their effect.

Employment

62. The Affirmative Action Stigma of Incompetence

There is evidence that people who are perceived as having been hired due to an affirmative action program are seen as less competent and less deserving of salary increases, even in the face of disconfirming performance information (Heilman, M.E., Block, C.J. and Stathatos, P., *Academy of Management Journal*, 1997, vol. 40, pages 604-625). Thus, even with some enhanced access to jobs, certain employees will unjustly find it harder to rise to economic parity, with predictable effects on the socioeconomic level of their families.

63. Mentoring and Salary

Black and Hispanic MBAs were less likely to form mentoring relationships with White men, and MBAs with such a mentoring relationship earned an average of \$17,000 more than those without such a mentoring relationship (Dreher, G.F. & Cox, T.H., 1996, "Race, Gender and Opportunity: A Study of Compensation Attainment and the Establishment of Mentoring Relationships", *Journal of Applied Psychology*, vol 81, pages 297-308). Thus, as in the item above, even with equality in education, certain employees will find it harder to rise to economic parity.

64. Higher Work Standards

Nontraditional managers (non-white, non-male) find their behaviors and performance are more highly scrutinized and held to higher standards than those of other managers (A. Morrison, 1992, *The New Leaders*, as cited by P.J. Ohlott and M.W. Hughes-James, Single-Gender and Single-Rate Leadership Development Programs, *Leadership in Action*, 1997, vol 17, number 4, page 9).

There is some evidence that supervisors rate employees of their own race/national origin more favorably than employees from other groups (Kraiger, K. and Ford, J.K. (1985) A Meta-Analysis of Ratee-Race Effects in Performance Ratings, *Journal of Applied Psychology*, 70, 56-65). To the extent that supervisors tend to be white, this will negatively effect job performance evaluations of African Americans.

65. Employment Discrimination and Socioeconomic Level

Minority men (as well as women in general) are disproportionately to be found “in the poorest-quality nonstandard jobs, such as regular part-time and temporary positions, which have the largest pay penalties and lowest benefits.” (See *Economic Policy Institute Annual Report 1999*, Washington, D.C., page 7, available at <http://www.epinet.org/>.)

Supporting a family on minimum wage, or even on \$6 or \$7 an hour is almost impossible (B. Ehrenreich, 2001, *Nickel and Dimed : On (Not) Getting by in America* (cited by Herbert, B. 2001, The unmasking of the poor. *New York Times*, July 30, 2001, A21, YNE edition).

Poor and working-class families face a critical hardship (such as being evicted, or missing meals) in the typical year (report released in the week of July 30, 2001 by the Economic Policy Institute, as cited by Herbert, B. 2001, The unmasking of the poor. *New York Times*, July 30, 2001, A21, YNE edition).

These employment conditions must contribute to lower socioeconomic levels for minority families, and this, in turn, to lower academic achievement of minority youth.

66. Intentional Employment Discrimination

In early November, 1996, numerous newspaper articles told of a tape-recorded conversation among senior executives of Texaco, who were caught plotting to destroy evidence in an employment discrimination lawsuit and using racial epithets (e.g., K. Eichenwald, *New York Times*, November 10, 1996, page E2, cols 1-2). Texaco agreed to pay the plaintiffs \$176 million (*Black Enterprise*, April 1997, page 110). This is not an isolated case. Denny's Restaurants' parent company, Flastar, settled two class action suits in 1994 by paying \$54 million to 300,000 customers and committing \$1 billion to minority hiring (*Black Enterprise*, April 1997, page 110).

In a field study conducted by researchers at the University of Chicago and MIT, the response rate from potential employers was higher for resumes of job applicants with white sounding as opposed to African American sounding names (Bertrand, M. & Mullainathan, S., 2003, "Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination." unpublished manuscript dated May 6, 2003).

Some private employment agencies in New York State were found by the New York State Attorney General to have "routinely solicited racial preferences from the prospective employers and then, based on that information, refused to refer people for certain jobs. Some of the agencies openly noted "No Blacks," "No Islanders" and "Prefers Europeans" in their internal records, which were then used to restrict eligibility for certain jobs." even in employment agencies that charged their fee to prospective employees rather than employers." Eight employment agencies entered into consent decrees with the state, and two other employment agencies that refused to do so were charged in federal court with civil rights violations. (NY State Department of Law press release dated 5/31/05, see http://www.oag.state.ny.us/press/2005/may/may31a_05.html.)

67. Unintentional Employment Discrimination

There are various disparities in the treatment of minorities in the workplace. For example, in the Federal civil service, proportionally fewer minorities than whites are asked to serve as acting supervisor, and fewer get cash awards (either increases in base pay or one time awards); and proportionally more are fired (U.S. Merit Systems Protection Board (1996) *Fair and Equitable Treatment: A progress report on minority employment in the federal government*

(especially pages 45-55). These differences are attributed, at least in part, to racially or culturally biased stereotypes. This same study reported that perceptions that minorities are subject to flagrant discrimination vary by race of respondent, with African Americans reporting this opinion more than 10 times as often as whites, and with more than 50% of African Americans reporting this opinion.

Housing

68. Housing Discrimination

The Department of Housing and Urban Development (HUD) reported in 1991 that fair housing testing audits in 25 cities showed that Blacks encountered discrimination more than half the time (Peter Medoff and Holly Sklar, *Streets of Hope*, 1994, page 16).

A study done under contract for the New York State Attorney General, used white and minority “testers” who contacted private housing rental agencies in one county. Of the 25 agencies contacted, 12 were reported as showing bias, such as a realtor telling a black tester that there were no units available even though a white tester was just shown four units (Drury, A., 2005, Housing agency names 5 brokers accused of bias, *The Journal News*, Tuesday June 7, 2005, Westchester, New York, or see thejournalnews.com).

69. Segregation in Housing

The typical White person lives in a neighborhood which is 80% White and 7% Black. The typical Black person lives in a neighborhood which is 33% White and 51% Black. The most segregated cities by neighborhood include: New York, Detroit, and Chicago. In metropolitan areas, 70% of Whites and 40% of Blacks live in suburbs. (Schmitt, E. “Analysis of census finds segregation along with diversity.” *New York Times National YNE*, A15, April 4, 2001.) This leads to segregated schools, among other things.

70. When Equal Housing is Unequal

Even when blacks and whites live in neighborhoods which are internally comparable, they adjoin different types of neighborhoods. A detailed study of Chicago showed that black middle class neighborhoods are more likely than white to border relatively unsafe, ghetto-like neighborhoods (DeAngelis, T., 2001, *Monitor on Psychology*, 37, 70-73).

71. Environmental Injustice

There have been various analyses of the distribution of toxic waste locations and other undesirable facilities and the racial/ethnic makeup of the residents of the surrounding areas and these seem to show preferential treatment of whiter neighborhoods (e.g., Wilson. J. 1997. *Environmental Inequity: Which came first, poverty or pollution?* New Jersey Reporter: March-April 1997, 26(6), 36-40, available at <http://www.njreporter.org/njreporter/pub/1997v26n6wilson.html>).

A study done in Massachusetts showed that communities where people of color make up 25% or more of the total population have nine times more hazardous waste sites, and five times as many pounds of chemical emissions from polluting industry facilities as compared to communities where less than 5% of the people are of color (report by D.R. Faber of Northeastern University and E.J. Kreig of Buffalo State College, available at <http://www.environmentalLeague.org/>). A bibliography on environmental justice is available at: <http://ecoethics.net/bib/1997/otca-005.htm>. A study done by the CDC shows higher levels of concentration of certain chemicals in Blacks than in whites (a 2003 CDC report cited in B. Harder, *Science News*, February 22, 2003, page 120).

72. The Impact of Neighborhood Poverty on Children's Development

Experimental studies involving families allowed or not allowed to relocate show that poor neighborhoods have large, negative effects on the development of children, including in areas of academic achievement, physical health, and mental health. These effects are larger than are seen in non-experimental studies (Leventhal, T. & Brooks-Gunn, J., 2003, *Psychological Science*, 12, 27-31).

Psychological - Not Test Construction/Validation

Several possible factors basically are, or may be categorized as psychological in nature.

73. African Americans Expect to be Stereotyped

Pinel developed an instrument to measure stigma consciousness, the extent to which you expect to be stereotyped by others. She found Blacks were higher than Whites in stigma consciousness. She performed an experiment with high and low scoring people which showed that people high in stigma consciousness tend to avoid situations which might confirm or

disconfirm the stereotype, perhaps due to stereotype threat (fear that you will validate the stereotype as true of yourself or of the group). (Pinel, Elizabeth C., 1999, Stigma consciousness: The psychological legacy of social stereotypes. *Journal of Personality & Social Psychology*, 76, 114-128.)

74. Performance of African Americans Suffers in Stereotype-Priming Situations

Steele and Aronson experimentally induced stereotype threat, the fear of validating a stereotype about your group to be true of yourself. In a 2x2 study of ethnic group and stereotype threat, Steele found the predicted interaction, with African Americans in the threat condition answering fewer questions and getting a lower mean score, but with no difference on self-reported anxiety. Furthermore, stereotyped individuals may defend their egos by self-handicapping, or otherwise reducing test-related motivation. On a general level this can apply to all academic motivation, and be carried into the workforce. It culminates in disidentification with academic and work-related achievement as a means of ego protection. (Steele, Claude M.; Aronson, Joshua (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality & Social Psychology*, 69, 797-811.)

There is research that indicates that elementary school children are susceptible to this type of stereotype threat (see Ambady, N., Shih, M., Kim, A. & Pittinsky, T.L. Stereotype susceptibility in children: effects of identity activation of quantitative performance. *Psychological Science*, 12, 385-390).

There is research indicating that college age women are susceptible to this type of threat. Just putting women in a setting where they are outnumbered by men caused lower performance on math tests (Inzlicht, M. & Ben-Zeev, T, 2003, Do high achieving female students underperform in private? The implications of threatening environments on intellectual processing. *Journal of Educational Psychology*, 95, 796-805).

75. Stereotypes Affect Performance Expectations

Participants expressed different expectancies for a subsequent task based more on the stereotypicality of the task than actual performance on previous similar tasks. Stereotypes undermine success through expectations and can be activated explicitly or by tokenism. This

may result in avoidance of stereotyped situations, and lowered performance on certain tasks. (Stangor, Charles; Carr, Christine; Kiang, Lisa (1998). Activating stereotypes undermines task performance expectations. *Journal of Personality & Social Psychology*, 75, 1191-1197.)

Seventh grade minority students who were taught ways to overcome pressures of negative stereotypes improve their performance on standardized tests (Good, C., Aronson, J., and Inzlicht, M., 2003, *Journal of Applied Developmental Psychology*, as cited on an on-line discussion group).

76. Learned Industriousness/Helplessness: Motivation in Face of Discrimination

Rewarded effort contributes to a learned industriousness (R. Eisenberger, 1992, Learned Industriousness, *Psychological Review*, 99, 248-267). It may be argued that facing bias in the criminal justice, housing and employment systems tends to debilitate academic and work motivation while also depriving one of the opportunity for learned industriousness.

Ogbu speaks of a job ceiling which results from constant pressures and obstacles which selectively assign Blacks to jobs of lower status and pay, and leads to a tendency for unsuccessful Blacks to blame the system rather than themselves for failure (page 30). He uses terms such as “disillusion,” “effort optimism,” and “perseverance” and concludes that effort towards success in academic programs is a function of expected payoff of effort (page 39-40). He reports that advances in pay have benefitted middle class Blacks but left lower class Blacks behind (page 45), and that there is an attitude “what is the use of trying” born of perceiving that economic rewards are not proportional to educational effort (page 46-47). See Ogbu, J. U. (1986). “The Consequences of the American Caste System” in *The School Achievement of Minority Children: New Perspectives*, ed. U. Neisser, pp. 19-56. Hillsdale, NJ: Erlbaum.

A summary of over a dozen public opinion surveys reports that while a majority of white Americans believe it is still possible to live the American Dream, only a third of black Americans agree. As compared to 1984, proportionally more people in 2000 think American society is divided into the haves and the have-nots and that many jobs do not pay enough to keep a family out of poverty. (Draut, T. (2001) *New Opportunities? Public Opinion on Poverty, Income Inequality and Public Policy: 1996-2001*, New York: Demos, a report funded by the

Rockerfeller Foundation and the Butler Foundation.)

A study done for the House Government Reform Committee after the 2000 presidential election found that there were generally higher rates of uncounted votes in predominantly poor and minority voters (D. Stout, *The New York Times*, 7/9/01, page A9). Whether intentional or not, this is disenfranchisement.

An analysis of the National Assessment of Educational Progress database showed that motivation accounted for 6.6% of total variance in math achievement in 12th graders, after such variables as parent education and exposure to math were statistically controlled (Byrnes, J.P. 2003. Factors Predictive of Mathematics Achievement in White, Black, and Hispanic 12th Graders. *Journal of Educational Psychology*, 95, 316-326).

77. Test Performance and Test-Taking Motivation

There is some evidence that Blacks have lower test taking motivation and that some portion of the Black-White difference in cognitive test performance is a result of this lower motivation, itself due to lower perceptions of face validity of cognitive tests (Chan, D., Schmitt, N, DeShon, R.P., Clause, C.S., & Delbridge, K. 1997, "Reactions to Cognitive Ability Tests: The Relationships between Race, Test Performance, Face Validity Perceptions, and Test-Taking Motivation." *Journal of Applied Psychology*, vol 82, pages 300-310, and Chan, D., 1997, Racial Subgroup Differences In Predictive Validity Perceptions on Personality and Cognitive Ability Tests, *Journal of Applied Psychology*, vol 82, pages 311-320.)

78. Child Care

Low-quality child care can lead to delayed language and cognitive development, acting more aggressively toward others, and a lowered ability to handle stress (S. Rimer, *The New York Times*, 4/16/96, page A22.) Low income families are likely to have less money to spend on child care, and so be more at risk in this respect.

79. Effects of All-Day Kindergarten

All day kindergarten boosted mastery of reading skills of “high-risk” students to 71% as compared to 54% of those enrolled half day. The longer day had no impact on students who were not low-income or poor English speakers (91% vs 89%). (Gowen, A. (2000) All-Day Kindergarten Boosts Reading, Washington Post, Tuesday, September 11, 2001, page B01. Also available at <http://www.washingtonpost.com/wp-dyn/articles/A6759-2001Sep10.html>.)

80. Typical and Maximum Performance

There is some evidence that there are smaller Black-White differences on maximum as compared with typical performance criteria. (See C.L.Z. Dubois, P.R. Sackett, S. Zedeck & L. Fogli (1993) Further exploration of typical and maximum performance criteria, definitional issues, prediction and white-black differences. *Journal of Applied Psychology*, 78, 205-211.) This topic has the potential to contribute to our understanding of Black-White differences and should be further explored.

81. Paucity of Complex Research

Onwuegbuzie and Daley report that there has been little research with more complex statistical models, such as structural equation modeling, which might clarify relationships among intelligence, race, economic status, and other sociocultural variables (Onwuegbuzie, A.J. and Daley, C.E. (2001) Racial Differences in IQ Revisited: A Synthesis of Nearly a Century of Research. *Journal of Black Psychology*, 27, 209-220).

82. Analogy to Earning Power of Women

Onwuegbuzie and Daley suggest we learn from the male-female wage gap that economic disparity is not a reflection of difference in intelligence (Onwuegbuzie, A.J. and Daley, C.E. (2001) Racial Differences in IQ Revisited: A Synthesis of Nearly a Century of Research. *Journal of Black Psychology*, 27, 209-220.)

83. The “Social Multiplier” Effect

Flynn (2003) suggests that relatively small differences in any ability (such as math) are magnified by a societal feedback loop in which small differences are noted, and then special attention (e.g., honors courses) works to increase the initially small observed differences. (See

Flynn, J.R., 2003, Movies About Intelligence: The Limitations of *g*. *Current Directions in Psychological Science*, 12, 95-99, especially page 97.)

84. Increases in IQ Over Generations

There are documented increases in measured IQ over time, sometimes referred to as the Flynn effect. This has been seen in industrialized countries, but also in non-industrialized. For example, a 2003 study by Daley and colleagues (cited in *Science News*, 2003, pages 293-294) reported an increase of 11 points in mean IQ of 6 to 8 year old children in Kenya.

85. Substantive Effects of Social Perception

There is a height bias in the workplace, with each added inch of height being worth over \$700 in annual income (*Journal of Applied Psychology*, vol 89, #3, as cited in Dittman, M. Standing Tall Pays Off, in *Monitor on Psychology*, page 14.) If height is related to salary, it is reasonable to think skin color may be also?

86. Subconscious Racial Stereotypes

Cognitive processing of ambiguous visual stimuli is influenced by seemingly subconscious biases. For example, viewing images of crime-related objects makes people pay more attention to black male faces (see the work of Eberhardt, J. and others as cited by L. Winerman, 2005, Racial Stereotypes can speed visual processing. *APA Monitor*, 36, 15.) Perhaps related to this, infants as early as the age of 3 months show preference for own-race faces (Bar-Haim, Y., Ziv, T., Lamy, D., & Hodes, R.L., 2006, Nature and Nurture in Own-Race Face Processing, *Psychological Science*, 159-163).

87. Race Stereotypes Negatively Affect Blacks in Police Settings

College students were asked to play the role of police officer and to respond quickly when presented with a person on a computer monitor. When presented with either a police officer, a criminal, or an innocent bystander, blacks were more likely to be shot at than whites, and harmless objects held by blacks were more likely to be treated as guns than the same objects held by whites (see Greenwald, A.G., Oakes, M.A., and Hoffman, H.G., 2003, *Journal of Experimental Social Psychology*, 39, 399-405; and Correll, Park, Judd, and Wittenbrink, 2002, *Journal of Personality and Social Psychology*, 83, 1314-1329, esp. page 1320.)

Police officers with an average of 12 years on the job were more likely to mistakenly shoot black than white unarmed suspects, in a laboratory study (Plant, E.A. & Peruche, B.M., 2005, The consequences of race for police officers' responses to criminal suspects, *Psychological Science*, 16, 180-183).

The above findings are not unusual in light of research that shows the close interdependence of affect and cognition (see, for example, Forgas, J.P., Affect and Cognition, *Perspectives on Psychological Science*, 3, 94-101).

Societal

Several possible factors basically are, or may be categorized as societal in nature.

88. Viewing of Violence on TV

There is evidence that viewing of violence on television will result in more violent acts on the part of the viewers. To the extent that inner-city and Black children watch more TV, they may be expected to be more violent and become involved in a life of crime, which does not foster academic achievement. (See, for example, Bushman, B.J. & Phillips, C.M. (2001) If the television program bleeds, memory for advertisement recedes, *Current Directions in Psychological Science*, 10, 43-47.)

89. Time Students Spend Watching TV

In Massachusetts, one-third of fourth grade students in Boston watched TV for 6 or more hours EACH day, whereas only about 3% of the fourth grade students in the suburb of Newton watched that much TV, and other suburbs were similar. (*Boston Herald*, June 10, 1995, page 8.) This has been reported to be related to crime in the neighborhoods. Due to alcoholism and drug abuse, mothers are reluctant to let children play unsupervised in the parks, churches open only for services, and many storekeepers only open their doors in response to a bell. Such drug abuse and crime affects the daily lives of the citizens in many ways, fiscal and societal. (*The New York Times*, February 29, 1996, page B4, article by Christopher S. Wren.) In New York City in 1993, 39 Whites between the ages of 15 and 24 died of homicide, while 368 Blacks did (J. H. Lii, *New York Times*, December 6, 1997, page A21.) Across the country, low socioeconomic youth and African American youth across income levels have the highest rates of viewing television, and

generally the time spent watching TV is developmentally unconstructive (Larson, 2001, How U.S. Children and Adolescents Spend Time: What it does (and doesn't) tell us about their development, *Current Directions in Psychological Science*, 10, 160-164, especially page 162).

90. Racism in "Non prejudiced" People

There are theories and studies which suggest that people of color experience overt acceptance combined with covert rejection in the workplace, perhaps due in part to the discomfit which White employees feel about Black employees, despite the egalitarian values espoused by the Whites (see Demographic Diversity in Decision-Making Groups: The Experiences of Women and People of Color. *Academy of Management Review*, 1997, vol. 22, No. 4, pages 946-973, especially page 954, Elsass, P.M. & Graves, L.M.)

"These studies [referring to response-latency studies by four independent researchers] demonstrate that Whites, even those who appear non-prejudiced on self-report measures, have generally negative associations with Blacks." (*APS Observer*, July/August, 1996, page 13, column 1.)

A review of 20 years of research concludes that bias in well-intentioned moderates is often subtle, automatic, unconscious and unintentional (Fiske, S., 2002, What We Know about Bias and Intergroup Conflict, the Problem of the Century. *Current Directions in Psychological Science*, 11, 123-128).

There is evidence that stereotyping based on Afrocentric facial features is very automatic and that people do it even when they try not to, and that this has practical implications. For example, judges give longer prison sentences to black or white felons with more Afrocentric facial features (see the work of Blair, I. and others as cited by M. Greer, 2005, Racial Stereotypes can speed visual processing. *APA Monitor*, 36, 14.)

A study of the effects of race of decision makers on promotional decisions found that African-American men were referred at a lower rate than white men, and African-American selecting officials were less likely to select an African-American applicant (Powell, G.N. & Butterfield, D.A., 2002, Exploring the Influence of Decision Makers' Race and Gender on

Actual Promotions to Top Management, *Personnel Psychology*, 55, 397-428).

Greenwald and colleagues have developed a computer-based reaction time measure they refer to as Implicit Association Test(IAT). Their research indicates consistently prejudiced attitudes of whites toward blacks. The IAT results do not correlate highly with explicit measures of attitude. (See summary and citation in Sternberg & Grigorenko, 2001, *Unified Psychology, American Psychologist*, 56, 1069-1079, especially page 1071-1072, and Kersting, K., 2005, *APR Monitor*, vol 36, March 2005, 64-65).

There is some research evidence of a neural basis of implicit attitudes (i.e., automatically triggered attitudes that can influence one's behavior without conscious awareness). The authors (Stanley, Phelps & Banaji, 2008, The neural basis of implicit attitudes, *Current Directions in Psychological Science*, 17, 164-170) say that implicit attitudes may "potentially run counter to our conscious objectives and beliefs" (pg 169).

91. Racism in Young Children

Katz reports finding that by age 6 the majority of children show bias against blacks and in favor of whites. She also summarizes studies done by others showing 85% of white pre-school children in Canada show such biases. (See summary and citation in Katz, P.A. (2003) Racists or Tolerant Multiculturalists? How Do They Begin?, *American Psychologist*, 58, 897-909, especially page 897.)

92. Classism: Perceived Social Class Affects Judgements of Ability

Prejudice was found in an experiment which had college students view a videotape of a fourth grade student taking an oral achievement test. When other cues indicated she came from a lower socioeconomic group, her ability was judged to be lower than when the cues indicated a higher socioeconomic group (Darley and Gross, 1983, cited in Lott, B., 2002, Cognitive and Behaviors Distancing from the Poor, *American Psychologist*, 57, pages 100-110, especially page 103). Lott identifies and summarizes other distancing and denigrating behaviors which she says operationally define discrimination and contribute to a larger construct called classism.

93. Gangs

There are a number of large gangs and many smaller gangs in this country which provide their members with a culture and lifestyle which completely denigrates scholastic ability and academic achievement. These gangs are often neighborhood based, and pose a barrier to travel and work in various neighborhoods. They also operate in local public schools where they foster violence and generally detract from the academic accomplishment of both members and non-members. (See, for example, P.R. Ward & J. R. Marino (nd) Turf Wars, Savannah Morning News, at:

<http://www.savannahnow.com/features/gangs/index.html>; G. Burnett & G. Walz, 1999, Gangs in Schools, *Eric Clearinghouse on Urban Education*,

<http://eric-web.tc.columbia.edu/digests/dig99.html>; and J. Edwards and A. Griggs (2000), Augusta fights spread of gangs, posted at the Savannah Morning News website Tuesday, December 19, 2000:

<http://www.savannahmorningnews.com/ns-search/smn/stories/121900/LOcthuglife.shtml?NS-search-set=/3b6d4/aaa208946d4ce7&NS-doc-offset=0&>). To the extent that a higher proportion of members of these gangs are black, this would account for some black-white difference in abilities which are or could be learned in school (such as reading and math).

94. Crime Victims

Blacks and Hispanics under the age of 22 were twice as likely to be the victim of a robbery than whites (Bureau of Justice Statistics, 1997, *Special Report: Age Patterns of Victims of Serious Violent Crime*, NCJ-162031, especially page 6.)

95. Emphasis on Sports

Blacks dominate many professional sports today (e.g., basketball, football), and there is a widespread stereotype of the “natural athletic ability” of Blacks. A look at some sports history might put this in perspective. In the 1920's and 1930's every Jewish boy in Philadelphia and New York City played basketball in the hopes of leaving the ghetto (by getting an athletic scholarship to a college). The Jewish players of those days faced racial slurs and biased officials. The stereotype applied to the Jewish players then was not only natural athletic ability, but also “scheming trickiness.” (See: <http://www.jewishsports.com/reflections/phillybball.htm>.) Perhaps

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some of the interest of blacks in sports is because: the rules of the game are clear, the potential payoff is great, and there is no aura of employment discrimination.

96. Poverty Leading to Mental Illness

There are indications that poverty can lead to mental illness (Christopher Hudson and Deborah Bell, quoted separately in C. Goldberg, *Boston Globe*, March 8, 2005, pages E1 and E4).

97. Voter Disenfranchisement

A report by the NAACP and People for the American Way Foundation found that black and other minority citizens were intimidated in the present day in ways that discourage voting (Reuters, August 26, 2004, *Boston Globe*, August 26, 2004, http://www.boston.com/news/politics/president/articles/2004/08/26/minorities_bear_brunt_of_sutler_bias_at_us_polls_report_says/ quoting from the report and quoting Julian Bond, Chairman of the NAACP).

Cultural

Several possible factors seem to be related to Afro-American culture or subculture.

98. Castelike/Involuntary Minority Groups

“Castelike” or “involuntary” minorities, which includes African Americans, are different than other minority groups (i.e. immigrant minorities). Castelike minorities are disadvantaged by their position in society which may explain decreased success in school. The pattern shown in African Americans is reproduced in other societies stratified to include castelike minority groups. (Ogbu, J. U. (1986). “The Consequences of the American Caste System” in *The School Achievement of Minority Children: New Perspectives*, ed. U. Neisser, pp. 19-56. Hillsdale, NJ: Erlbaum.)

For example, Korean Japanese are marginalized in much the same way as African Americans, and the two groups mirror each other in terms of low academic success. In America, however, Korean Americans perform comparably to Japanese Americans, which is better on average than the majority group of White Americans. (See Lee, Yongsook. (1991). “Koreans in Japan and the United States” in *Minority Status and Schooling: A Comparative Study of*

Immigrant and Involuntary Minorities, eds. M. Gibson and J. Ogbu, pp. 131-168. New York: Garland Publishing, Inc. Also, Fischer, Claude S. et al. (1996). *Inequality by Design: Cracking the Bell Curve Myth*. New Jersey: Princeton University Press.) Koreans in Japan are seen by some Japanese to be genetically inferior (personal communication, Brady Cusick, anthropology graduate student doing research on Japan, April 19, 2001). In America, there is little distinction made between Koreans and other Asians (except within the Asian communities).

99. Class Systems Can Exist With No Race Differences

In Britain, performance on academic exams is correlated with socioeconomic level, and only tiny proportions of students from many inner city districts score high enough to proceed to higher education. (*Financial Times*, June 12, 1996, Report page 10.) In Wales, inner city populations (e.g., in Cardiff) have lower status and lower economic status despite no racial or ethnic uniqueness (J. P. Wiesen, personal observation, 1994). In Holland there is a 15% disparity between the wages of Dutch workers and foreign workers (Amnon Rubinstein in the Israeli paper Haaretz, 5/4/03, <http://www.haaretz.com/hasen/pages/ShArt.jhtml?itemNo=289738&contrassID=2&subContrassID=4&sbSubContrassID=0&listSrc=Y>).

100. Worldwide Perspective of Societal Problems

Drug abuse in Glasgow, Scotland are similar in magnitude to that of New York City (based on comparison of statistics quoted by Youssef M. Ibrahim in the *New York Times*, Sunday, August 18, 1996, International Edition, page 14), indicating that drug abuse is a societal or an urban problem, not a problem unique to ethnic minority groups nor to America.

101. Comment on Changing Perceptions of Other Ethnic Groups

Ethnic groups go through changes in public perception. For example, some 300 years ago Cromwell said of the Irish, "They're lazy, they're improvident. Drive them out and give them no chance because they are no use." (Quoted in *The New York Times*, February 29, 1996, page A21, in an editorial by Maureen Dowd.) In the 1800's in New York City it was the Irish, Italian and Jewish immigrants who were brutalized by the NYC Police (Rabb, S. *The New York Times*, August 17, 1997, page 38NE reporting the results of the New York State Lexow Commission report).

102. Oral Tradition

Africa is steeped in oral tradition, not in written tradition. To this day in Ghana, the ancestral home of most African-Americans, there are many indigenous oral languages but no indigenous written languages (personal communication with E. Wiesen, Peace Corps Volunteer in Ghana, July 15, 1996). This may be reflected in a greater oral emphasis in today's African-American culture (e.g., rap music). An African-American preference for oral/aural modes of communication is described, for example, by Boykin (A.W. Boykin "The Triple Quandary and the Schooling of Afro-American Children" page 61, in U. Neisser (Ed.), *The School Achievement of Minority Children*, Erlbaum Publishers, 1986). In addition, during the slave period in this country, written communication often was forbidden among slaves, and they were not taught to read or write. A test which uses a written medium may not be a fair test for people from a more oral culture. It is well known that Blacks do better on oral than written civil service tests for promotion in the public safety arena.

103. Reading to Young Children

Compared to whites, proportionally fewer Black children between the ages of 3 and 5 are read to by their parents (61% vs 41%; Federal Interagency Forum on Child and Family Statistics, 2001, *America's Children: Key National Indicators of Well-Being 2001*. Federal Interagency Forum on Child and Family Statistics, Washington, DC: US Government Printing Office, Table ED1 on page 102).

104. Multiple Cultures

Some researchers hold that African Americans live in two cultures, that these cultures are not mutually supportive, and that they may make it difficult for elementary school students to benefit maximally from their educational opportunities. (A. W. Boykin "The Triple Quandary and the Schooling of Afro-American Children" page 61, in U. Neisser (Ed.), *The School Achievement of Minority Children*, Erlbaum Publishers, 1986, pages 62, 65-70.)

105. Oppression Resistance

Some researchers have said that some African American grade school students come to see the teacher as an oppressor and use various coping strategies, such as not taking the education

program seriously, and dissembling - giving outward cues of cooperation while covertly trying to undermine their teacher's efforts. (A. W. Boykin "The Triple Quandary and the Schooling of Afro-American Children" page 61, in U. Neisser (Ed.), *The School Achievement of Minority Children*, Erlbaum Publishers, 1986, pages 75, 78-80.)

106. Culturally Linked Survival Skills Counter to Academic Achievement

Some researchers have identified survival skills which are counter to academic achievement, such as hustling, "Uncle Tomming" (being subservient to powerful people), and "collective struggle" (blaming the system for your individual failures). See page 48 in Ogbu, J. U. (1986). "The Consequences of the American Caste System" in *The School Achievement of Minority Children: New Perspectives*, ed. U. Neisser, pp. 19-56. Hillsdale, NJ: Erlbaum. More Blacks than Whites report distrust of our social system (16% of Blacks and 44% of Whites think most people can be trusted). (*APS Observer*, July/August, 1996, page 12, column 1.)

107. Cultural Inversion

Ogbu suggests that African Americans have a tendency to define certain types of behavior as not Black just because Whites display it (e.g., style of dress, walking, religion), and the fear of "looking or acting white" discourages some school age African Americans from academic efforts. (See page 49 in Ogbu, J. U. (1986). "The Consequences of the American Caste System" in *The School Achievement of Minority Children: New Perspectives*, ed. U. Neisser, pp. 19-56. Hillsdale, NJ: Erlbaum.) Black-American public school students oppose or are ambivalent about proper English (Ogbu, J.U., 1999, *Beyond Language: Ebonics, Proper English, and Identity in a Black-American Speech Community*, *American Educational Research Journal*, 36, 147-184, especially pages 169-170). This poses a dilemma for black youth: fitting in with their peers and academic achievement are mutually exclusive (B. Herbert, *New York Times*, July 10, 2003, page A23, YT edition).

108. Cultural Expectations

There may be different cultural expectations, leading to different levels of academic accomplishment. Cultural expectations can be powerful, and can be implemented in powerful ways. For example, in France all school children are expected to learn to draw, and they do. In America only the artistically talented and interested learn to draw. In France, school children

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from ages 6 to 10 take course work in art covering, for example, drawing with different means (pencil, charcoal, chalk of art, pastel), painting, modeling, sculpture, and calligraphy. (The official program of drawing and music lessons in France is described at: http://www.mission-culture.org/mission/textes/c_ecole.html.)

Onwuegbuzie Daley cite studies showing that people in Africa placed more emphasis on social intelligence rather than technological, which would have an impact on measured intelligence (Onwuegbuzie, A.J. and Daley, C.E. (2001) Racial Differences in IQ Revisited: A Synthesis of Nearly a Century of Research. *Journal of Black Psychology*, 27, 209-220).

At least one study showed that cultural factors affected math ability of Chinese students living and educated in Canada, when compared with Chinese students educated in China, and non-Asian Canadians educated in Canada (Campbell and Xue, 2001, *Journal of Experimental Psychology: General*, 130, 299-315).

109. Subtle Effects of Living in Different Cultures

There are subtle but possibly important cognitive effects of living in different cultures. These effects are little studied and not well understood. For example, there are cultural differences in making and understanding facial expressions of emotion (Marsh, A.A., Elfenbein, A. & Amdady, N., “Non-Verbal ‘Accents’: Cultural differences in facial expressions of emotion”, 2003, *Psychological Science*, vol 14, pages 373-376; and Maass, A. & Russo, A.) and tendencies to see words unfold from left to right or right to left (“Directional bias in the mental representation of spatial events: Nature or culture”, *Psychological Science*, vol 14, pages 296-301). The two research studies just cited do not deal with blacks in America, but it seems reasonable to think that similar differences might be seen if studied. To the extent that blacks live in a different cultural setting than whites, such subtle effects may affect knowledge acquisition as well as job performance.

Test Construction/Validation

Despite many years of effort on the part of psychometricians toward understanding and minimizing adverse impact, several possible reasons relate to test content or validation.

110. We May Be Overlooking Important Test Areas

Sternberg suggests the field of testing suffers from ideational stagnation (1998, *American Psychologist*, 53, 576-77). He suggests we are missing some important test areas: creativity, tacit knowledge, and practicality. Many selection systems do seem to ignore these test areas. Tacit intelligence does NOT correlate with IQ tests, and tacit knowledge is predictive over IQ and more than IQ! [Hard to argue against tacit intelligence, if it exists - since it is just what is learned from experience.] Sternberg, 1999, *Review of General Psychology*, 3, 292-316 (page 14). This might argue in favor of oral exams and assessment centers (which have less adverse impact) and other practical exercises which may tap these areas, and for test development based on critical incidents and based on tasks rather than more academic knowledges, skills, abilities, and other characteristics. Carroll (1993) identified 70 abilities; do we measure mainly those areas which we are comfortable measuring because we have done so before? It may be that employers would be interested in our measuring some of the areas, such as tacit knowledge or personality/work-style, especially for customer service jobs.

Another line of research by another research team suggests that there are other areas which can be measured and which are valid predictors of job performance while showing virtually no mean score differences between Blacks and whites. These areas include personal adjustment, human relations, and effectiveness under stress. (See H.W. Goldstein, K.P. Yusko, & V. Nicolopoulos, 2001, *Personnel Psychology*, 54, 783-807).

Situational judgement tests (SJTs) show promise of validity for employment selection purposes but with reduce adverse impact (McDaniel, M.A. & Nguyen, N.T., 2001, Situational Judgement Tests: A review of practice and constructs assessed. *International Journal of Selection and Assessment*, 9, 103-113).

111. Short-term Memory

Tests of short-term memory have validity approximately equal to that of personality tests, and have half the adverse impact of other cognitive ability tests, but are rarely used in personnel selection in business or industry. (See. e.g., Ferive, J.M. & McDaniel, Michael A. (1996) Short-term memory tests in personnel selection: low adverse impact and high validity. *Intelligence*, 23, 15-32; and Barrett, G.V., Carobine, R.G., & Doverspike, D. (1999) The reduction of adverse

impact in an employment setting using a short-term memory test. *Journal of Business and Psychology, 14, 373-377.*)

112. Reaction Time

One recent study indicates that reaction time is related to earlier death in adults, perhaps due to less efficient information processing (Dreary, I.J. & Der, G., 2005, Reaction time explains IQ's association with death, *Psychological Science, 16, 64-69*). With electronic means of measuring reaction time so prevalent, and with this indication of practical impact of reaction time, it might be fruitful to revisit the validity of reaction time as predictors of job performance.

113. Spatial Ability

Tests of spatial ability show lower correlations with socioeconomic status than tests of math and verbal ability and add incremental validity to verbal and math assessments in predicting 20-year educational-vocational outcomes of intellectually talented teenagers (Shea, D.L., Lubinski, D. & Benbow, C.P., 2001, "Importance of Assessing Spatial Ability in Intellectually Trained Young Adolescents: A 20-year longitudinal study" *Journal of Educational Psychology, 93, 604-614*, especially page 612, col 1). It may be that use of such tests, when appropriate, will tend to reduce adverse impact of personnel selection systems. However, there are relatively few tests of spatial ability, and many of the tests that exist are old, and some are inconvenient to use.

114. Psychomotor Ability

Psychomotor ability appears to be more important for job performance in low cognitive ability jobs after training is complete than for the training period. (Leatta Hough, 2003, SIOP Pre-Conference Training Program "Science and Art of Assessment and Selection"). But validation studies often look only at performance during training programs or during the first months on the job, and psychomotor tests are little used (e.g., the Minnesota rate of manipulation test is no longer available from the publisher). Tests of psychomotor ability show little or no adverse impact. It may be that psychomotor ability should be weighted more heavily for some jobs.

115. Domain Specificity of Some Test Areas

Some seemingly general test areas may be domain specific (for example, managerial expertise may be unique to an industry or a company) while often we use generic instruments. Specifically, Sternberg says creativity is domain specific. (Sternberg, 1999, *Review of General Psychology*, 3, 292-316, especially page 13.)

116. Bias in Job Performance Criterion Measures

In simulated business settings, college students gave Black "applicants" lower ratings and selected proportionally fewer of the Black applicants when their "supervisor" gave the students a "business related" suggestion, such as to match the ethnic group of the new hire with the White ethnic composition of the clientele (see Beyond good intentions: The next steps toward racial equality in the American workplace. *Academy of Management Executive*, 1997, vol. 11, No. 4, pages 59-72, by Brief, A.P., Buttram, R.T., Reizenstein, S., Pugh, S.D., Callahan, J.D., McCline, R.L., and Vaslow, J.B.)

A meta-analysis of experimental studies of the effects of physical attractiveness on job-related outcomes such as perceived job qualifications, hiring recommendations, and compensation levels has shown the average effect size to be .37, and attractiveness was equally important for men and women and professionals were as susceptible to this source of bias as were college students. (See Hosoda, M., Stone-Romero, E.F., & Coats, G. (2003). The effects of physical attractiveness on job-related outcomes: A meta-analysis of experimental studies. *Personnel Psychology*, 56, 431-462.) To the extent that blacks may be perceived to be less attractive than whites, this may be another source of adverse impact in various important job-related outcomes.

There is research that indicates that people judge others who have Afrocentric facial features in a stereotypical (negative) fashion but that they are not aware of doing so, rather thinking that they are relying on facial expressions and the like (see Blair, Judd, Sadler, and Jenkins, 2002, Role of afrocentric features in person perception: judging by features and categories, *Journal of Personality and Social Psychology*, 83, 5-25, esp. pages 20 and 22; and Wittenbrink, Judd, and Park, 1997, Evidence for racial prejudice at the implicit level and its relationship with questionnaire measures, *Journal of Personality and Social Psychology*, 72,

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262-274, esp. page 272.) Bias of this type, especially when self-awareness is lacking, might well affect supervisors' evaluation of employees' job performance.

(See also comments above on the relationship between physical height and salary.)

If the measures of job performance are biased, then tests that predict those measures in a "fair" fashion may well be biased also, rather than fair.

117. Comment on Test and Job Performance Effect Sizes

There is some evidence that Black-White differences in test performance are twice as large as the differences in job performance. Several studies report differences in job performance to be about ½ standard deviation, whereas test differences are often 1 standard deviation. (Barrett, 1996, Page 64, "Criterion-related Validity" in R.S. Barrett *Fair Employment Strategies in Human Resource Management*. Quorum Books, Westport, Connecticut. Schmitt, N., Hattrup, K., & Landis, R.S., 1993, Item Bias Indices Based on Total Test Score and Job Performance Estimates of Ability, *Personnel Psychology*, 46, 593-611.)

118. Everyday Intelligence and IQ

Expertise in some seemingly very complex non-academic tasks (e.g., handicapping harness horse racing) is unrelated to IQ scores, although presumably handicapping requires intelligence. (See page 5 of U. Neisser, G. Boodoo, T.J. Bouchard, et al. (11 authors) Intelligence: Knowns and unknowns. *American Psychologist*, 51, 77-101.)

119. Opportunity to Learn Job Knowledge

Job knowledge tests may be among the most valid, but there may be unequal opportunity to learn. For example, many fire departments are now requiring applicants for entry-level firefighter to be certified as EMTs, whereas from perhaps 1970 to 1990 fire departments hired based on aptitude tests. Since it takes a certain amount of money and time to become an EMT, and, more directly, since there are relatively few minority EMTs, restricting the pool of candidates to EMTs will have adverse impact, even if valid.

120. Cultural Bias in Some Tests

Some tests have an unnecessarily high reading level, and others have content which reflects acculturation, specifically knowledge which is easier to learn in some parts of our society. (Examples of this may include math questions which ask about the “assessed value” of a property, or about “duties” on gifts brought into the country.) Some tests of supervision or management may credit behaviors (e.g., eye contact) which are less likely or even discouraged in some cultures (e.g., as in the area of respect for authority, or the exercise of authority, or the interaction of an employee and a client).

There is some evidence that job sample tests are seen by candidates as more fair, and have less adverse impact than written tests for trades workers (Schmitt, N. & Mills, A.E. (2001) Traditional Tests and Job Simulations; Minority and Majority Performance and Test Validities. *Journal of Applied Psychology*, 86, 451-458; Schmidt, F.L., Greenthal, A.L., Hunter, J.E., Berner, J.G., and Seaton, F.W. (1977) Job sample vs. paper-and-pencil trades and technical tests: adverse impact and examinee attitudes, *Personnel Psychology*, 30, 187-197; and Schmitt, N.E. & Mills, A.E. 2001 Traditional Tests and Job Simulations: Minority and Majority Performance and Test Validities, *Journal of Applied Psychology*, 86, 451-458.)

121. Semantic Content

The functioning of test questions with higher semantic content change over time more than other test questions (K. Chan, F. Draskgow & L.L. Sawin, 1999, *Journal of Applied Psychology*, 84, 610-619. This might be taken to imply that, to the extent that they have different everyday grammar and syntax, items with higher semantic content would function differently for White and African American test takers.

122. History of Intelligence Testing in America

The eugenics movement was founded by Galton, one of the founders of the field of mental testing (R. E. Fancher (1998) Some Lessons From the Life of Francis Galton. *History of Psychology*, 1, 99-115). Early in the 1900's some influential psychologists thought southern Europeans were mentally inferior on the basis of written test scores. However, it is clear today that their lower test scores were due to their recent immigration to this country and the associated difficulties with English. However, at the time this was seemingly not considered.

We psychologists might be a bit humble in light of this unfortunate aspect of the early history of cognitive ability testing. A number of authors contend that early intelligence test data influenced the passage of the restrictive 1924 Immigration Act in this country, although some dispute this. (See F. Samelson, 1985, *Quotes, questions, and standards for historical research. American Psychologist, 40*, 243-244; L.J. Kamin's *The Science and Politics of I.Q.*, 1974; and L.J. Kamin (1975) Social and legal consequences of I.Q. tests as classification instruments: Some warnings from our past. *Journal of School Psychology, 13*, 317-323.)

123. Response Mode

In some cultures adults do not ask children known-answer questions (e.g., how many fingers do you have, or what color is the balloon). If tests ask such questions, the child tested may be confused. Children have available to them various culturally determined problem solving strategies. See D. Miller-Jones (1989) Culture and Testing. *American Psychologist, 44*, 360-366.

Inherited

124. Sickle Cell Anemia

Symptoms of this genetic disorder of the blood are variable from day to day, but are painful and can damage many major organs and tissues. The symptoms can exacerbate the symptoms of other diseases, including infections. The disorder can directly or indirectly cause a child to miss school. About 1 in 400 African American babies is born with this disease. (See URLs http://www.fda.gov/fdac/features/496_sick.html and <http://encarta.msn.com/find/Concise.asp?ti=06723000>).

125. Vitamin D Deficiency and Rickets, etc.

All reported cases of rickets in Georgia from 1997 to 1999 were black infants from 8 to 21 months. Black women are 10 times as likely to be vitamin D deficient as white women (42% versus 4%). These black-white differences are probably due, in part, to fact that it takes dark-skinned people longer to absorb vitamin D from the sun. It may also be due to some blacks avoiding vitamin D enriched foods because of difficulty digesting milk products. Low vitamin D concentrations in the blood are related to risk for type 2 diabetes as well as bone problems, and to colorectal cancer in women. (See Raloff, J. 2004, Vitamin D: What's Enough, *Science News*,

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October 16, 2004, pages 248-249.)

126. Drug Tests Biased Against Blacks

(See D. E. Lewis, "Drug Test Biased Against Blacks, 7 Ex-Officers Allege", *Boston Globe*, July 27, 2005, page A1 and B5.)

Article said US Transportation Dept and the Pentagon said they would not use hair, saliva, or sweat tests because they were concerned about the fairness of these tests of drug usage.