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THE IMPORTANCE OF QUESTIONING AND CHALLENGING: A HIGHER EDUCATION FAIL?

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Abstract

A primary goal of education, especially higher education, is to provide students with the tools to think *for themselves*—that is, how to think, not what to think. The authors demonstrate that many theories have not stood the test of time. This includes views and beliefs such as rational choice theory, maximizing shareholder value, greed is good, what it takes to be a great leader, and many more. Therefore, it is essential to teach students not to accept what they are taught without deliberation. Questioning so-called facts is a good trait, and higher education should not be about blind acceptance or indoctrination.

Keywords: Rational Choice Theory, Theory of Maximizing Shareholder Value, Behavioral Economics, Marxism, Popper, Predictions by Experts, Retrospective Cohort Studies, Meaning of Diversity, Confusing Statistical Significance with Scientific Importance.

Introduction

A primary goal of education, especially higher education, is to provide students with the tools to think *for themselves*—that is, how to think, not what to think. Students may not always agree with their instructors, but they will eventually acquire invaluable skills from them. This is particularly crucial today, with the public, inundated with disinformation and conspiracy theories, mistrusting science, governments, business, and the media. Many feel that we live in a post-factual and post-truth age. This is a severe problem because there is a great deal of evidence to show that facts do not correct misinformation; rather, they make it more persistent and potent (Gorman & Gorman, 2017; Kolbert, 2017; Lewandowsky et al., 2012; Mercier & Sperber, 2017).

Critical thinking is essential not only in the workplace but in every undertaking. Critical thinking includes qualities such as inquisitiveness, curiosity, open-mindedness, flexibility in considering alternatives, understanding others' opinions, fair-mindedness, prudence in making or altering judgments, and a willingness to revise beliefs (Facione, 2015). Employers complain that college and university graduates lack the necessary critical thinking skills (Belkin, 2017; Gerstein & Friedman, 2016). Arum and Roksa (2011) found that many students had barely improved their critical thinking skills after four years of college. This happens when professors are more interested in indoctrinating students to regurgitate their beliefs rather than teaching them critical thinking (Friedman & Friedman, 2020). One cannot learn ethical thinking without possessing critical thinking skills (Paul, 1988).

One famous saying from the Babylonian Talmud (Berachot 4b) is especially true today: "Teach your tongue to say, 'I do not know,' lest you be entangled in a deceit." The best cure for the dangers of absolute certainty and overconfidence is having humility and appreciating the value of doubt, constructive debate, and compromise.

This paper examines some of the ideas taught in many higher learning institutions that are untrue, possibly untrue, or probably false. At the very least, these are ideas that should be discussed and analyzed, rather than accepted as axioms.

Rational Choice Theory

Rational choice theory states that individuals use rational calculations to make rational choices and achieve outcomes that are aligned with their own personal objectives. These results are also associated with maximizing an individual's self-interest. Using rational choice theory is expected to result in outcomes that provide people with the greatest benefit and satisfaction, given the limited options they have available. (Ganti, 2022)

In the discipline of economics, rational choice theory has been challenged by so many researchers—especially since the Great Recession of 2008—that it has become evident to many scholars, including Daniel Kahneman, the Nobel laureate, that the theory is incorrect (Ariely, 2009; Friedman, Fireworker, and Nagel, 2017). Kahneman felt that Alan Greenspan, then the chairman of the Federal Reserve, had not foreseen the financial crisis of 2008 because of his mistaken belief in the rational man theory (Ignatius, 2009). Nouriel Roubini, a prominent economist known as Dr. Doom for predicting the housing market collapse in 2006, stated, "The rational man theory of economics has not worked" (Ignatius, 2009). What is surprising is that Greenspan had already questioned the rational man theory several years earlier because of the Enron crisis. In the wake of the Enron debacle, Greenspan voiced his concern at a meeting about how easy it was for CEOs to "craft" financial statements in ways that could deceive the public. He declared: "There's been too much gaming of the system. Capitalism is not working! There's been a corrupting of the system of capitalism" (Suskind, 2008, para. 8).

Behavioral economics uses psychology to demonstrate that people often make irrational decisions. Various cognitive biases result in people behaving in a manner inconsistent with classical economic theory. Thaler and Mullainathan (2008, para. 3) concurred, saying: "The standard economic model of human behavior includes three unrealistic traits—unbounded rationality, unbounded willpower, and unbounded selfishness—all of which behavioral economics modifies." Unbounded rationality is fallacious because people do not have the unlimited ability or time to process information correctly. They therefore use rules of thumb (heuristics) as shortcuts to make decisions, and decisions made this way often involve irrational choices or judgments. Hence the notion of bounded rationality.

The second imputed but unrealistic character trait is unbounded willpower. Many individuals often realize that they lack complete self-control and therefore act in ways that may not be rational. For example, they may deliberately pay more taxes to ensure that they receive a tax refund. Of course, this is not logical behavior, but people know they do not have "unbounded willpower" and prefer this form of saving even if it means they forego interest.

Although the economic theory, while stressing self-interest, may not ignore altruism, it does not pay much attention to it (see Hámori, 1999, for an article dealing with benevolence). But evidence supports the view that human beings are boundedly selfish. Thaler and Mullainathan (2008) provided numerous examples of how people act selflessly. Most people give money to charity and do volunteer work. People who have the chance to

free ride will only do so moderately and not take full advantage of the opportunity. Most people behave in a way that suggests more is at play than pure self-interest (e.g., fairness). Pay-it-forward behaviors demonstrate that people often act unselfishly (Yang et al., 2020).

Thaler and Mullainathan (2008) described how, in experiments involving "ultimatum" games, we see evidence that people do not behave as traditional economic theory predicts they will. People will act "irrationally" and reject offers they feel are unfair because they care about fairness and justice:

In an ultimatum game, the experimenter gives one player, the proposer, some money, say ten dollars. The proposer then makes an offer of x, equal to or less than ten dollars, to the other player, the responder. If the responder accepts the offer, he gets x and the proposer gets 10 - x. If the responder rejects the offer, then both players get nothing. Standard economic theory predicts that proposers will offer a token amount (say twenty-five cents) and responders will accept, because twenty-five cents is better than nothing. But experiments have found that responders typically reject offers of less than 20 percent (two dollars in this example). (Thaler & Mullainathan, 2008, para. 8)

The ultimatum game is evidence that greed, which usually is excessive, can backfire and result in less, not more, for the avaricious individual.

Behavioral economists have discovered that the pain of losing something we own outweighs the joy of winning by as much as two to one. If outcomes are framed as losses rather than gains, people are likelier to take risks and invest greater effort (Massar et al., 2020). Many other examples demonstrate that consumers behave in unexpected ways that economic theory does not predict.

Asch and Gigliotti (1991) posited that "by equating rational behavior with free riding, economists might be proselytizing rather than educating." Indeed, López-Pérez and Spiegelman (2012) conducted a study of truthfulness and found that the least honest college majors are those in economics and business (23% honesty rate vs. slightly greater than 50% honesty rate for humanities majors). By teaching students *homo economicus* (rational man), it is quite possible that we inadvertently teach them that values such as helping others are unimportant. Generosity may actually be entirely logical, given that studies demonstrate that people who are generous and benevolent will live mentally and physically healthier lives than those who are selfish and self-centered (Post & Neimark, 2007).

Is Greed the Same as Self-Interest?

Adam Smith was an 18th-century Scottish moral philosopher who wrote *An Inquiry into the Nature and Causes of the Wealth of Nations* (usually referred to as *The Wealth of Nations*). In this classic work, Smith stated: "It is not from the benevolence of the butcher, the brewer or the baker that we expect our dinner, but from their regard to their own interest" (Smith, 1784 [1976a], pp. 26-27). He intended to demonstrate how universal self-interest and the "invisible hand" of the marketplace allocate scarce resources efficiently and promote social welfare. In effect, the invisible hand theory posited that allowing individuals to pursue their own self-interest would result in greater prosperity for everyone. The economic process works like an invisible hand guiding the marketplace much better than central planners attempting to regulate the economy. Unfortunately, the argument led to the belief that regulation is unnecessary and that "greed is good."

Smith's statement undoubtedly has a great deal of truth, and the invisible hand should be used to guide the marketplace. After all, capitalism does a far better job of allocating resources than a planned economy. However, Smith did not believe that the single-minded pursuit of self-interest would benefit society, but rather that "Society cannot subsist among

those who are at all times ready to hurt and injure one another. ... If there is any society among robbers and murderers, they must at least ... abstain from robbing and murdering one another" (Smith, 1790 [1976b], p. 86). To Smith, benevolence—not the pursuit of self-interest—was among the highest virtues (Robinson, 2007; Pack, 1991). Smith asserted in *Theory of Moral Sentiments* (1759) that economic growth depends on morality.

In a commencement address entitled "Morality and Economics," Robinson (2007) declared that Smith's philosophy had been distorted; he did not believe that pursuing profits and self-interest alone would ensure that society would thrive. On the contrary, as a moral philosopher, Smith believed in the importance of morality and virtue. She noted that many academics have misinterpreted Smith's opinions and that conservative politicians have been using his name to promote an unalloyed laissez-faire economy (which some might call "predatory capitalism") that would result in the near destruction of capitalism.

It is crucial to distinguish between greed and self-interest to understand Smith, since the two terms are not synonymous and are vastly different. Greed may work in the short run but is very destructive in the long run. Erich Fromm, the distinguished psychoanalyst, understood the perils of greed, as is clear from two of his famous quotes: "Greed is a bottomless pit which exhausts the person in an endless effort to satisfy the need without ever reaching satisfaction" and "Greed has no satiation point, since its consummation does not fill the inner emptiness, boredom, loneliness, and depression it is meant to overcome."

Greed is caring only about oneself and not caring at all about others. It is also about a willingness to violate the law to make lots of money. On the other hand, self-interest does not suggest a "bottomless pit of desire" that can never be satisfied. Moreover, it can include benevolence. As corroborated by Smith in *The Theory of Moral Sentiments* (par. I.1.1): "Altruism may actually be entirely rational, given that studies demonstrate that people who are generous and benevolent will live a mentally and physically healthier life than those who are selfish and self-centered" (Walsh & Shapiro, 1983). For example, employees who work hard to make extra money for their family, help a sick friend, or donate more to charity are motivated by benevolent self-interest (Sexton, 2015, p. 6).

Adam Smith—Government Should Not Interfere in Case of Famine but Allow Free Markets to Solve the Problem

Adam Smith may be seen as the father of capitalism, but he made one serious error. White (2012, pp. 309-315) described the effects of Smith's opinion that "Famine has never arisen from any other cause but the violence of government attempting, by improper means, to remedy the inconvenience of death." This notion that governments should not interfere with famine resulted in the deaths of 26.6 million people in British-ruled India. Amartya Sen challenged this view, noting that famines do not occur in democracies and that governments' actions can prevent deaths from famine in both poor and rich countries (White, 2012, p. 309). One may believe in free markets but should understand that there are times when the government has a role to play in preventing disasters.

Free Markets Lead to Peace Between Countries

Soll (2022) asserted that the prominent idea in economics that free markets lead to peace between countries is probably wrong, believing this to be the main reason why the United States granted China "most-favored nation" trade status. Congress had felt that this approach would bring China closer to the Western world's ideals of democracy, but what actually happened? Communist China has become more autocratic and belligerent and is now a superpower threatening the United States. Germany made the same mistake regarding Russian oil. All that was accomplished was making it more difficult for Western Europe to respond to Putin's destructive attempt to annex Ukraine.

Infinite Economic Growth is Good

The conventional wisdom is that economic growth is good, that GDP needs to continue to grow, and that a thriving economy is one in which GDP grows significantly each year. Herman Daly, a prominent ecological economist, wrote numerous books (e.g., For The Common Good: Redirecting the Economy toward Community, the Environment, and a Sustainable Future (1989) and From Uneconomic Growth to a Steady-State Economy (2015)) debunking this and posited that more is not always better; economic growth that is not sustainable can result in ecological disaster if its costs overshadow its benefits. Earth has finite natural resources, and focusing solely on development without considering its environmental impact is a mistake. He argued that GDP should be measured to reflect the environmental costs.

Dhara and Singh (2021) saw the belief in infinite economic growth as a delusion. They concluded that the public must accept that the infinite growth model is impossible because the consumption of natural resources and GDP are inextricably linked:

Every stage of the life cycle of any manufactured product exacts environmental costs: habitat destruction, biodiversity loss and pollution (including carbon emissions) from extraction of raw materials, manufacturing/construction, through to disposal. Thus, it is the increasing global material footprint that is fundamentally the reason for the twin climate and ecological crises (para. 3).

The Theory of Maximizing Shareholder Value (MSV)

The doctrine that the purpose of corporations is MSV (i.e., to maximize share price) has no basis in U.S. corporate law or practice. Shareholders of corporations are allowed to make a profit if they act in the public interest, and states can revoke the charters of corporations if they behave contrary to the public interest. The myth that shareholders are placed before everyone else is probably related to the microeconomic concept that maximizing profits is a firm's foremost goal. The Nobel Laureate and renowned economist Milton Friedman felt strongly that top management must be solely concerned with increasing shareholder wealth, not social welfare. In 1970, Friedman attacked the idea of businesses having social responsibility in a well-known *New York Times Magazine* article. The article's title summarizes his belief that "The Social Responsibility of Business is to Increase its Profits."

Friedman's (1970) view provided the theoretical basis for an opinion that Jensen and Meckling (1976) embraced, namely that a firm's goal should be MSV. They advanced the idea that the way to achieve this is to offer CEOs and other key corporate leaders financial incentives such as stock options and shares of stock to "align their interest with maximizing the stock price." The theory of MSV has caused numerous problems and created a culture in which accounting fraud, grossly excessive CEO compensation through stock options, crony capitalism, and little concern for the welfare of employees have become the usual ways of conducting business. In many cases, MSV hurts shareholders and employees while benefiting only key executives, who take considerable risks to maximize their compensation at the expense of growth or even the firm's survival (Clark & Friedman, 2016; Denning, 2012).

Jack Welch, the former CEO of General Electric Corporation (GE), claimed that the corporate objective of MSV is immoral, the "dumbest idea in the world," and an excellent way to destroy an organization in the long run (Denning, 2011). Finally, it is becoming evident that many employees wish to work for firms that want to better society, not maximize shareholder value. The bottom line is that MSV is actually counter-productive to its stated purpose.

Four Economic Ideas Disproven by Reality

Bernstein (2019) discussed the following four ideas, which economists have gotten wrong for decades and have been refuted by facts:

- 1. A higher minimum wage harms workers.
- 2. Going below the natural rate of unemployment could spark an inflationary spiral.
- 3. Everybody wins with globalization.
- 4. Deep budget deficits will crowd out private investment.

Do minimum wage increases hurt their intended beneficiaries, namely low-wage workers? According to the basic economics description, an increase in the minimum wage motivates more people to enter the labor market because they will earn more money. Consequently, an increase in the minimum wage increases firms' costs, and the quantity of labor demanded decreases. Thus, according to classical economic theory, laws such as minimum wage affect the structure of the labor market, and they create unemployment. Nevertheless, a large amount of research has concluded that minimum wage increases accomplish their goal of raising pay for low-wage workers without large job-loss effects.

According to theory, when the unemployment rate drops below a certain level, referred to as the natural rate, the inflation rate will tend to increase and continue to rise until the unemployment rate returns to its natural rate. The natural rate of unemployment is a rate below which it is believed that inflation will spiral upward. However, in influence labor markets, middle- and low-wage earners lack the bargaining power that they have in tight labor markets. Consequently, they face lower pay, fewer hours of work, higher poverty, and wider racial economic gaps (Bernstein, 2019; Bivens & Zipperer, 2018).

According to economic theory, freer trade has been a win-win strategy for the United States and its trading partners, enabling benefits from specialization, lower costs, more choice, and an improved international climate for investment and innovation. However, expanded trade generates winners and losers. For instance, free trade has led to large trade deficits with countries with factory productivity that is comparable to that of the United States but with much lower wages, mostly in Mexico and China. Furthermore, US manufacturing employment had been flowing down; since 2000, almost 6 million jobs in the US have been lost (Bernstein, 2019).

Deep budget deficits crowding out private investment is a theory known as "crowdout," suggesting government borrowing from a relatively fixed stock of loanable capital crowds out private borrowing, which in turn raises the cost of capital and the interest rate. In the 1970s and 1980s, there were larger budget deficits and higher interest rates. But since then, deficits have shifted significantly up and down while interest rates have consistently floated down.

In an ideal world, "Practice is always based on theory, whether articulated or not; and theory is corrected by practice, in a continuing circular relationship" (Fitzgerald, 1987, p. 21). Bernstein felt that the above four theories were not supported by reality and should be changed. At a minimum, they should not be taught as truisms because they can and have caused great harm.

Teaching Marxism as Science

Popper and others have posited that Marxism is a "pseudoscience" and only worth studying as a "sociological phenomenon dangerous to a society" (Hudelson, 1980). Popper contended that Marx's theory was "historicist" and based on a misunderstanding of the scientific method (Hudelson, 1980). He maintained that Marxist theory could not be scientific because it could not be falsified (i.e., proven wrong), and this made Marxism as unscientific as psychoanalysis. According to Popper (1963):

Marx's original theory of the collapse of capitalism was just such a bold conjecture and thus scientific, but it was proven false and should therefore be rejected. Yet instead of accepting the refutations the followers of Marx reinterpreted both the theory and the evidence in order to make them agree. In this way they rescued the theory from refutation; but they did so at the price of adopting a device which made them irrefutable. They thus gave a 'conventionalist twist' to the theory; and by this stratagem they destroyed its much-advertised claim to scientific status. (Popper 1963, p. 37)

Pirie (2013) stated that Karl Marx made several mistakes about the future of capitalism. First, the capitalism that existed in his day has changed over time. Because capitalism has evolved, it has not driven down wages to the point at which workers barely survive, a scenario that Marx predicted would bring about capitalism's demise. We have seen that the standard of living of everyone, including workers, has reached incredible heights in many capitalistic countries. One reason for this is that capitalism has been tempered via government regulations that have prevented egregious excesses. There are laws protecting workers, from minimum wage to social security to child labor laws. What Marx predicted would happen in the final stages of capitalism in advanced economies actually occurred in China and Russia, countries with highly underdeveloped economies that adopted Marxist theory. Capitalism has survived because it is the only economic system that can be adapted and regulated so that it creates wealth for all.

Capitalism has faced many crises, and each time it has evolved and changed. Each time a new form of capitalism has emerged to solve the problems its predecessor faced. This is how human beings progress. We solve our problems by adapting our practices. Capitalism certainly faced a crisis in 2008, but it is still with us, as yet uncollapsed. (Pirie, 2013, para. 10)

The immense cost in human misery caused by communism is staggering. More than 60 million people perished under Stalin and Mao alone (White, 2012, p. 529). Tragically, a flawed ideology that was conceived and aimed to help the proletariat harmed them so immeasurably.

Acemoglu and Robinson (2012, pp. 73-83) examined why some nations prosper and others are impoverished. They made distinctions between *inclusive* economic institutions that encourage economic activity and provide incentives that motivate people to work hard, which requires a country with secure property rights and strong, equitable laws. In such countries, people know they can keep their wealth if they are industrious. People in these countries are willing to invest to increase their wealth. These countries have relatively level playing fields and allow people to obtain an education, choose careers, and enter any business they want. They also encourage innovation and entrepreneurship and incentivize people to improve themselves.

Countries that have extractive economic institutions tend to stagnate and decline. Power is concentrated in the hands of the few, and elites have the political power. These elites use political and economic institutions to enrich themselves at the expense of the rest of the population. Acemoglu and Robinson (2012, p. 83) felt that "nations fail when they have extractive economic institutions, supported by extractive political institutions that impede and even block economic growth." They used this approach to contrast North Korea with South Korea and Nogales, Arizona, with Nogales, Mexico (a single city cut in half by a fence). Different types of institutions result in different economic outcomes. China became a huge economic success when it moved from an extractive to an inclusive economic system

(Acemoglu & Robinson, 2012, p. 426). If an economy is to grow, it needs a system with incentives for people to use their abilities and talents. Because Soviet communism did not provide such incentives, the Soviet Union became a failed country, which is the usual fate of nations with extractive institutions. Even Cuba, one of the last of the Marxist countries, now allows entrepreneurial citizens to open small businesses. In any case, only an ideologue would unequivocally state that Marxism is the superior economic system.

What it Takes to be a Great Leader or Company

Sampling, or selecting on the dependent variable, refers to the practice of selecting cases in which some measure or phenomenon of interest has been observed and excluding ones in which they have not been observed. The selected cases are then used to prove the measure or phenomenon of interest. For example, suppose a researcher looks only at unsuccessful firms as measured by annual returns. She concludes that these firms are headed by leaders who are unethical and that a lack of integrity on the part of the CEO will hurt the company. This finding may or may not be valid. The flaw in the researcher's reasoning is that she did not also examine successful firms. Dishonest CEOs may also head successful firms.

Much of the research in management is based on sampling on the dependent variable. A researcher might examine the 20 most successful firms and find their commonalities. This then becomes the basis for a book or article. *In Search of Excellence* by Tom Peters and Robert H. Waterman (1982) is one of the most popular business books. The authors studied 43 of America's best-run companies to determine what made them successful and came up with eight basic management principles. In other words, they sampled based on the dependent variable of "excellent firms in 1982." The question is, what has since happened to those firms? Eckel (2013) said that "two-thirds of them underperformed the S&P 500 over a decade. Some faltered badly, and some even went out of business." Kodak, Kmart, and Wang Labs are three examples of firms on Peter and Waterman's (1982) list that went bankrupt. Amdahl, also on the list, was successful until the early 1990s and then started losing money and was eventually taken over. Baum and Smith (2015) also found that the stock performance of these companies did not stand the test of time.

A similar problem was found with Collins's research. Collins and his team of researchers identified 11 companies whose stocks had performed spectacularly. They found that these companies were headed by "level 5 leaders" who had great humility and were driven to make their organizations succeed. Over time, these 11 companies did not do very well (Baum & Smith, 2015). Two of the 11 firms had serious problems; the price of Fannie Mae stock plummeted from \$80 to \$1 from 2001 to 2008 and eventually was delisted, while Circuit City went bankrupt (Baum & Smith, 2015).

Rosenzweig (2007) also underscores that many books about successful management are what is known as 'cargo cult science,' meaning that they appear to be scientific but are essentially anecdotal and not evidence based. He called "these things 'cargo cult science' because they follow all the apparent precepts and forms of scientific investigation" (2002, p 14). Also, Warren Bennis and James O'Toole, in 2005 Harvard Business Review article, criticized business schools for their reliance on the scientific method:

"This scientific model is predicated on the faulty assumption that business is an academic discipline like chemistry or geology when, in fact, business is a profession and business schools are professional schools – or should be" (2005, p 4).

Many management beliefs are not based on hard evidence but on opinions. Some examples of the management myths cited by Pfeffer and Sutton (2006) include (1) the use of stock options to compensate corporate leaders results in better financial performance for the organization; (2) forced performance ranking of employees (this often means that the bottom

10% to 20% are terminated) ensures higher productivity and profits; and (3) the first company to enter an industry has a considerable advantage over its competitors. Pfeffer (2015) opined that we should not believe what we hear at corporate training seminars regarding what it takes to be a great leader. Instead, we should accept that leaders are largely dishonest, manipulative, untrustworthy, not humble, and not authentic.

The above examples demonstrate the dangers of this type of research. There is a widespread belief that people who were molested as children will also become molesters. What kind of research was done to establish this finding? If a researcher only studied child molesters and found that, say, 60% had been molested as children, does this prove the relationship between being molested as a child and becoming a molester? To validate this kind of relationship, one should also look at people molested as children and perform a longitudinal study to determine what had happened to them.

There is one study that did examine this belief in a cycle of sexual abuse. The results supported the finding but only for male perpetrators; 35% of perpetrators of sexual abuse had themselves been victims as children (79/225) versus 11% (56/522) for non-perpetrators. This finding was not true for women. In a sample of 96 females, 43% had been victims, but only one later became a perpetrator (Glasser et al., 2001).

Jack Welch was named the Manager of the Century by Fortune magazine. GE was a \$14 billion company when Welch became its CEO, and it went on to be worth \$600 billion by the time he retired. This appears to be a huge accomplishment, but it is now becoming clearer what Welch actually did. He took an industrial company that manufactured products such as appliances, light bulbs, and jet engines and transformed it into what was essentially a giant unregulated bank (most of its profits came from GE Capital) (Gelles, 2022a).

He believed in outsourcing, offshoring, and firing the bottom 10% of employees annually, thereby destroying morale. He kept the stock price up by focusing on cost-cutting and financial manipulation—the company got into trouble with the SEC for accounting fraud charges. It became evident that Welch had created a culture of doing anything, including deceptive tactics, to distort earnings and keep the stock price increasing (Gelles, 2022a, 2022b). Welch may have mocked MSV as a corporate objective; still, he made sure that GE would meet or beat analysts' estimates for approximately 80 quarters in a row by using GE Capital, the finance division, as a tool to accomplish this. After he had retired, GE went into a nosedive and never recovered.

Welch influenced numerous managers and is seen as "The Man Who Broke Capitalism" by Daniel Gelles, the author of a book with that title. One company that Welch acolytes greatly influenced was Boeing. Following Welch's management philosophy, the firm became more interested in cost-cutting than in safety and quality. Before this change in attitude, if executives were not satisfied with the reliability of a plane, they would modify it, despite costly delays. Once Boeing shifted its focus to its stock price, the culture changed, and the goal was to cut costs, look for shortcuts, and ignore what deliberative and cautious engineers wanted. This led to the two 737 Max crashes that killed 346 people (Robison, 2021).

What is Diversity?

Critical thinking necessitates that people see the world from new perspectives, including through the voices of women; Black, Asian, and LGBTQ people; the disabled; and all minorities. Unsurprisingly, diversity improves critical thinking and cognitive abilities; it makes us more intelligent by giving voice to all kinds of people with many varied ideas (Phillips, 2014). Firms that encourage diversity outperform those that are less diverse.

Our latest analysis reaffirms the strong business case for both gender diversity and ethnic and cultural diversity in corporate leadership—and shows that this business case continues to strengthen. The most diverse

companies are now more likely than ever to outperform less varied peers on profitability.

Our 2019 analysis finds that companies in the top quartile for gender diversity on executive teams were 25 percent more likely to have above-average profitability than companies in the fourth quartile—up from 21 percent in 2017 and 15 percent in 2014. (Dixon-Fyle et al., 2020, paras. 4-5)

This may explain why diversity, equity, and inclusion has become the mantra of many organizations. Unfortunately, diversity is not being taught correctly in many institutions. First, race is a biological myth, and it is socially constructed. This paradigm shift is the first step in moving away from racism and bigotry. There are six arguments supporting the view that race is not biology.

1. People cannot be reliably divided into racial groups. 2. There are no relationships between traits that are used to categorize people into races (like skin color) and associated stereotypes. 3. Over time, geography and environment influence the genetic structures of human populations through natural selection. 4. There is more diversity within racial groups than between racial groups. 5. All people living today are descended from populations that originated in Africa. 6. All people living today are one biological species (McChesney, 2015, p. 2).

A basic theory of biology is that through natural selection, environment and geography will, over time, affect the genetic structures of humans, including such factors as height, skin color, and facial characteristics. The most crucial idea is that race should not be equated with skin color, and firms should not discriminate against any individual who is different. The Nazis asserted that German Aryans constituted a superior "master race" and that all non-Aryans were inferior. They murdered millions of men, women, and children who they claimed were of a substandard race, which these accursed murderers called *untermenschen*, or sub-humans. We should consider whether asking people to check boxes indicating race and measuring diversity by examining frequencies is a good idea. Lothrop Stoddard (1883–1950), an American historian and white supremacist, wrote some malevolent, racist books, including *The Rising Tide of Color Against White Supremacy*. His books influenced Nazi Germany, and the "great replacement" conspiracy theory popular with right-wing extremists today has its roots in his work. He believed in categorizing people as "white," "yellow," "black," "brown," and Amerindian (Stoddard, 2020).

Many types of unintentional and unconscious discrimination (also known as implicit bias) cause irreparable harm to an organization and may not be illegal. Thus, discrimination based on physical beauty, name bias (preference for hiring those with Anglo-Saxon names over ethnic names), weight bias, height discrimination, accent bias, and speech disability (e.g., stuttering) bias are all serious problems. One should not assume that an organization has eliminated discrimination solely because x% of employees are African American and Latino. There is evidence that skin tone bias may also be an issue in hiring (Chen & Tan, 2022). By focusing on checking the boxes rather than respecting the value of true diversity, we have created a corporate culture that is disingenuous and insincere.

Students are rarely told of the importance of diversity of opinion. Hearing all sides and learning how to evaluate different viewpoints enhances our wisdom. Racial diversity does not guarantee diversity of thought or the elimination of discrimination. Try to imagine a Supreme Court consisting of nine Clarence Thomases. Would that be laudatory if an academic department consisted of 30 Herschel Walkers? There is a lawsuit against Brooklyn College because professors in the graduate mental health counseling program have allegedly "maligned Jews on the basis of race and ethnic identity by advancing the narrative that all

Jews are white and privileged and therefore contribute to the systemic oppression of people of color" (Redden, 2022, para. 2). Any organization that is serious about eliminating discrimination has to do significantly more than check boxes.

Jonathan Haidt co-founded the Heterodox Academy to push for "viewpoint diversity" on campus (Goldstein, 2017). Unfortunately, some institutions offer courses encouraging tribalism and hindering society. There are certain fields in the humanities usually characterized as "grievance studies" where "Scholarship based less upon finding truth and more upon attending to social grievances has become firmly established, if not fully dominant" (Eggington, 2018, A21). The opposite of critical thinking, these courses may produce angry people who can never fit into the community or the workplace. Kaylan (2010) noted that ethnic cheerleading is not a substitute for practical knowledge.

The Heterodox Academy released a *Guide to Colleges* that provides ratings to inform students which campuses offer diversity of thought and free speech. Haidt has been criticized for his absolutist stance on free speech, which his critics feel "is at odds with the need for a diverse and inclusive university." Haidt stated that the new moral culture prevalent on many college campuses "values victims, prioritizes emotional safety, silences dissent, and distorts scholarship. It is a culture that undermines the university's traditional mission to pursue truth" (Goldstein, 2017).

Those who believe that the only remedy for racist discrimination is "antiracist discrimination" might be causing more harm than good. Many feel that racial categorization is itself a problem and results in a ferocious battle among different ethnic groups. This is unfortunate, given that ethnic groups are intermarrying. Indeed, 35% of Americans have close relatives that married someone from another race; approximately 30% of Asians are married to someone from a different ethnic group (Brooks, 2022, A23).

Obesity and Other Kinds of Research

George et al. (2016, p. 781) highlighted ten routine errors in the "statistical analysis, design, interpretation, and reporting of obesity research." Many of these errors are also common in research involving medicine, psychology, and other disciplines. The first problem underscored by George et al. involves the false belief that statistical significance is sufficient to establish the claim that a finding is meaningful, practical, and should be published.

Ziliak and McCloskey (2009) were among the first to draw attention to the issue of confusing statistical significance (i.e., p-values) with scientific importance. They noted that almost 90% of the leading journals covering science, economics, and medicine confused the two concepts. The result of this error produces unchecked a large net loss for science and society. Its arbitrary, mechanical illogic, though currently sanctioned by science and its bureaucracies of reproduction, is causing a loss of jobs, justice, profit, and even life. (Ziliak & McCloskey, 2009, p. 2302)

Saleh (2022) also underscored that p-values, when used alone, often yield false positives and say nothing about the importance of one's findings. Saleh concluded that "the false positive rate associated with a P value of .05 is usually around 30% but can be much higher." One serious problem with p-values is that they do not necessarily reflect effect sizes. It is possible to demonstrate a very low p-value (especially with substantial sample sizes) where the magnitude of the effect is trivial. Therefore, it is crucial to examine the confidence intervals as well as the p-value. Another problem with p-values is that it is not difficult for researchers to churn their data or use large sample sizes to effect necessary p-values. An unscrupulous researcher might massage the data to yield a p-value less than 0.05 if that is what it takes to get published.

Ignoring effect sizes has resulted in so many false positives that numerous studies have found that it is challenging to replicate findings in multiple disciplines, especially

psychology (Saleh, 2022). Researchers have been talking about a replication crisis. There is a severe problem in reproducing the results of numerous major studies, which is why many scientists and physicians are skeptical of a significant percentage of the published findings.

More than 70% of researchers have tried and failed to reproduce another scientist's experiments, and more than half have failed to reproduce their own experiments. Those are some of the telling figures that emerged from *Nature*'s survey of 1,576 researchers who took a brief online questionnaire on reproducibility in research. (Baker, 2016, para. 1)

Approximately 60% of 100 experimental studies in the field of psychology could not be replicated. The percentage of failed replications in experimental economics was also surprising, at 40%. One economist noted that it is unlikely that findings will be reproducible if only a 5% significance level is used (Bohannon, 2016).

George et al. discussed the problem involving multiple testing, which refers to the issue of testing several hypotheses at a time. When a researcher conducts several tests on the same data set, the likelihood of making a Type I error increases. Thus, when testing at a traditional significance level of .05, researchers should expect to reject the null hypothesis five out of 100 times incorrectly. This is why it is crucial to work with an experiment-wise error.

The last error discussed by George et al. is the use of causal language in studies in which subjects have not been randomly assigned to the treatment and control groups. Many studies, especially those involving diet, are nonrandomized. Thus, researchers might examine, say, the diets of overweight people relative to those of people who are normal weight. A nonrandomized study like this does not provide information about causality, only about correlations. A researcher might be tempted to suggest that consuming certain foods causes obesity (suppose the obese group consumes considerably more sweets than the normal weight group). This is not necessarily true, and there may be reverse causality; that is, Y may be causing X, rather than X causing Y. Thus, obese people may have a greater desire for sweets than those of normal weight. If there is a correlation between the number of books in a house and the IQ of children living in that house, this does not mean that providing books to homes with children will improve IQ scores. Another possibility is that a third unobserved variable, Z, causes both X and Y, and without that variable, X and Y are unrelated.

Randomized controlled trials are the gold standard for research but are more expensive and time-consuming than nonrandomized studies; randomization eliminates all kinds of possible biases. One bias that might not be eliminated relates to problems with generalizability. There is no way to know with certainty whether volunteers willing to participate in a study are representative of the population as a whole.

Cohort studies are helpful for obtaining information and vital in epidemiological research. They provide evidence as to which risk factors increase (or decrease) the likelihood of different kinds of disease by following large samples of subjects over numerous years. In addition, they can provide information regarding the incidence, the relative risk of different groups, and prognoses for different kinds of outcomes. Cohort studies can be classified as prospective or retrospective depending on when the outcomes of interest (e.g., heart disease, stroke, or cancer) occur. Thus, if an outcome does not occur at the beginning of the study but happened after it commenced, it is considered a retrospective study. Some researchers prefer retrospective cohort studies (RCSs) to save time and money. There are all kinds of problems with cohort studies, including (1) subjects may drop out of the study or die and cause bias, (2) the behavior of participants may be affected because they are aware that they are part of a study, and (3) there may be confounding variables that the investigator may not be aware of (Barrett & Noble, 2019). Incidentally, a heuristic is that the loss to follow-up should not exceed 20% (Wang & Kattan, 2020). Wang and Kattan discussed the weaknesses of cohort

studies. One drawback of RCSs is that, in many cases, the researcher does not have control over the data collection. When a study starts, the data may be collected for another purpose and not be entirely accurate for the current study.

Ioannidis (2005) demonstrated that many medical research studies have been proven to be false. This is especially true for nonrandomized studies, of which 80% were later found to be incorrect (Gutting, 2013). This is because it is difficult and costly to conduct randomized controlled experiments, and so most research is based on correlational data. Furthermore, data mining software enables one to dredge the data and perform hundreds of statistical tests until something appears significant at the p <.05 level (Ioannidis, 2005).

More than 40% of adult Americans suffer from obesity, costing the American health system approximately \$173 billion yearly. With all the research done in this area, only one thing can be stated with certainty: "There's no consensus whatsoever about what the cause of it is" (Belluz, 2022, para, 2). We can also state with reasonable certainty that it is not the consequence of a personal failing. In fact, fat shaming backfires and results in weight gain.

Predictions by Experts Are Valuable

Many experts rely on statistical evidence, but as noted above, this may be insufficient to corroborate any theory if not done correctly. Unsurprisingly, several books have been written about expert predictions that usually turn out wrong. Kahneman (2011, pp. 218-219) cited research conducted by Tetlock (2005) that demonstrated how poorly experts who make a living "commenting or offering advice on political and economic trends" actually perform. They do not perform better than monkeys throwing darts at a board displaying the various possible outcomes (p. 219).

Kahneman (2011, p. 241) said about expert intuition: "Claims for correct intuitions in an unpredictable situation are self-delusional at best, sometimes worse ... intuition cannot be trusted in the absence of stable regularities in the environment." If an environment is very stable and regular, an expert can understand the regularities by observing the right cues. In areas where there are no regularities and consistencies (e.g., the stock market or a political environment), people will not be able to develop any real expertise.

According to Dobelli (2013):

Experts suffer even more from the overconfidence effect than laypeople do. If asked to forecast oil prices in five years' time, an economics professor will be as wide of the mark as a zookeeper will. However, the professor will offer his forecast with certitude (Dobelli, 2013, para. 3).

Virtually all economic models failed to predict the Great Recession of 2008 (Krugman, 2009; Smith, 2015). In the aftermath of the Great Recession, Krugman (2009) wrote a compelling essay entitled "How Did Economists Get It So Wrong?" He identified the rational man theory and the overreliance on econometric models of the economy that make invalid assumptions as the real culprits for the economic debacle. The best economic models are not judged on forecasting something new but on "how well the model fits the data on the phenomenon the model was created to describe." This is almost worthless, since one might end up with hundreds of contradictory models to describe hundreds of different phenomena (Smith, 2015).

Smith went on to state:

Economists didn't just fail to see that monster recession; they routinely fail to see economic events coming. The best models we have—the ones central banks use, which take graduate-level training in order to handle—have about as much forecasting power as simple, naïve

mathematical techniques that any undergraduate statistics major could whip up in a few minutes (Smith, 2015, para. 5).

Predictions made by academics are especially suspect. Kahneman (2011), citing Tetlock (2005), had the following to say about these kinds of predictions:

In the age of academic hypersegmentation, there is no reason for supposing that contributors to top journals—distinguished political scientists, area study specialists, economists, and so on—are any better than journalists or attentive readers of *The New York Times* in 'reading' emergency situations (Kahneman, 2011, p. 219).

Kahneman (2011, pp. 222-233) stated that algorithms often do a better job at predicting than experts. He described several situations in which one should rely on a simple checklist of six relevant characteristics rather than on an expert. Kahneman discussed a simple algorithm developed by Dr. Virginia Apgar in 1953 to determine whether a newborn infant is in distress. Her method is superior to the expert judgment of obstetricians, since it focuses on several cues. Kahneman did point out the hostility towards using algorithms. Incidentally, Apgar's algorithm, which is still in use, has saved thousands of lives.

Kahneman (2011, p. 226) cited the work of Dawes (1979) and claimed that a simple formula that uses predictors (i.e., independent variables) with equal weights is often superior to multiple regression models that use complex statistics to assign different weights to each of the predictor variables. This is because multiple regression models are often affected by "accidents of sampling." Of course, some common sense is needed to select the independent variables most likely to predict the dependent variable accurately. Dawes (1979) claimed that the simple metric of "frequency of lovemaking minus frequency of quarrels" does an excellent job of predicting marital stability (Kahneman, 2011, p. 226). The bottom line is that we should not be overly impressed with the judgment of experts.

Conclusion

Karl Popper made scientists realize how science is supposed to work. He said, "No number of sightings of white swans can prove the theory that all swans are white. The sighting of just one black one may disprove it" (James, 2002, para. 1; Popper, 1963). The way science works is that scientists should look for black swans to disprove the existing theory, not try to confirm their beliefs by looking for additional support (white swans). The way to differentiate pseudoscience from science is by falsification via experiments or observations. Einstein may have disproven Newton's theory of gravity, but scientists today are starting to challenge Einstein's model (Deaton, 2019).

The purpose of this paper is to accentuate the danger of intellectual arrogance. Not too many theories stand the test of time, so it is essential to teach students not to accept automatically what they are taught. Questioning so-called facts is a good trait. As we have attempted to show, many studies have been proven wrong. Even Einstein made mistakes (Falk, 2018). Sadly, even after theories have been disproven, professors might continue to teach them. It is probably difficult for some academics who suffer from disciplinary elitism (the belief that only their discipline has the answer to all kinds of questions) to accept that they are wrong and that scholars from another field are closer to the truth. The truth often requires scholars from several disciplines to work together to find a correct solution.

The Manhattan Project is an excellent paradigm for this and brought together all kinds of researchers, including mathematicians, physicists, engineers, chemists, and project managers. If the Manhattan Project had been run like a university, the researchers from the various disciplines would have been at each other's throats. It is not uncommon for applied scholars to battle theoretical scholars in fields ranging from philosophy to mathematics. The ugliest conflicts occur within economics and with economists disparaging sociologists.

Indeed, Fourcade, Ollion, and Algan (2015) wrote about the belief economists have that their discipline being superior to other social sciences.

Weast (1973) suggested that if education aims to cultivate minds so that young people learn to think effectively and make appropriate decisions, tolerance and humility must be emphasized. He contended that professors are generally not known for possessing those traits, and academics rarely tolerate opposing opinions and have no issues with one-sided presentations. Indeed, some professors see nothing wrong with—and even encourage—using the classroom to indoctrinate students and teach them radical opinions (Weast, 1973). If academic institutions want to enhance their credibility and avoid derision, the goal should be to encourage true critical thinking.

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