A MORE EGALITARIAN SOCIETY:

ARE OUR PERSONAL BIASES
A RESULT OF CULTURAL CONDITIONING?

S.A.

In the book *Blink* by Malcolm Gladwell lies the story of how an underfunded hospital became one of the premier hospitals in the world. In the late 1990s Cook County Hospital, the principal public hospital of Chicago, instituted a new policy for the way physicians analyzed patients who came to the ER complaining about chest pains. Back then, Cook County was, to say the least, a mess. With approximately 250,000 patients annually going through the emergency department alone, outdated and inadequate facilities, and very limited resources, Cook County had a plethora of problems. One of the most pressing of those issues was diagnosing chest pain.

A single night for a patient in the coronary care unit cost roughly $2,000, and a typical patient might spend up to 3 nights in that care. In a major hospital already scrambling to gather enough resources, this was a very costly unit. Not only that, a huge portion of patients admitted to this ward were not actively suffering from any heart failure, about 90%. The threat of malpractice always loomed over the heads of these doctors, so when in doubt the doctors would admit the patients rather than risk a terrible accident, or worse, a terrible lawsuit. And unfortunately, when it came to diagnosing chest pain there was a lot of doubt.

Take, for instance, the test that Brendan Reilly (the chairman of Cook County's Department of Medicine) issued to a wide range of experienced staff. Reilly compiled twenty very typical cases of people with chest pain and gave them to his staff. Reilly wanted to gauge the amount of agreement there would be between these experts. What he found was that there was practically none. "We asked the doctors to estimate on a scale from zero to one hundred the probability that each patient was having an acute myocardial infarction [heart attack] and the odds that each patient would have a major life-threatening complication in the next three days," said Reilly. "In each case, the answers we got pretty much ranged from zero to one hundred. It was extraordinary." (Gladwell 130)

Of course, there are some tests that allow doctors to know with complete certainty whether or not a patient is experiencing heart failure, but those tests are expensive in both resources and time, and simply do not work at a hospital as stretched as Cook County. So here was the dilemma: the hospital was being run on a shoestring as it was, yet every year Cook County found itself spending more and more time and money on people who weren't actually having heart attacks. The hospital could not afford to expand this unit any further, nor could it use the other accepted methods of diagnosing chest pain. Cook County needed an original idea to solve its problem, and they found one in the research of Lee Goldman.

In the 1970s cardiologist Lee Goldman developed an algorithm to more accurately diagnose chest pain. Goldman received the basis for this idea after studying some of the research of a group of mathematicians who were developing statistical rules for distinguishing between subatomic particles. Goldman took some of these principles and cardiology information and developed a system that proved to be 70% more effective and efficient than the current common practices. How ist it possible do this? Did this algorithm take all of this information and find a pattern? No. As a matter of fact, the algorithm only based it's diagnoses off of a couple crucial factors and more or less bypassed the rest.

The desperate Cook County Hospital did a trial run of this system and found it extremely effective. Before, the doctors provided accurate diagnoses on the most serious patients 75-89% of the time. The algorithm bumped that percentage up to 95. However, despite all the compelling evidence, the whole theory is very counter-intuitive. Doctors were told to gather *less* information from patients, to look at fewer variables, before making their decisions, and it worked incredibly well. They focused only on a few key pieces of information – like blood pressure, lung-fluid content, levels of angina, and the electrocardiogram results – while ignoring all other information

provided, such as age, weight, and medical history. Currently, Cook County is one of the best places in the US at diagnosing chest pain.

bi·as

/ˈbīəs/

noun: Prejudice in favor of or against one thing, person, or group compared with another
(Oxford Dictionaries: bias)

The focus of this paper is bias, and the general misinformation surrounding it. This discussion will include the formation of biases, the impacts of biases, the roots of biases, and the ways to reform our biases. The example of Cook County is one that provides insight into how we think and process information, and takes us one step closer to finding the root of bias.

Goldman's algorithms only used select information and excluded other aspects because they simply did not hold much weight in determining whether or not the patient was suffering from some form of heart failure. This information, such as weight, ethnicity, age, and medical history, was the cause of the huge disparity between the answers of professional cardiologists and doctors. This information *biased* the answers of these people. Of course, this information obviously was not simply extraneous bits of fact; weight and age are often very blatant indicators of potential heart failure, there is a noticeable gap between races for the likelihood of heart failure, and obviously one's medical history serves as an important precedent when analyzing information. However, Goldman decided that while all these may be helpful to the layman or for very brief examinations, these indicators can often be misleading. These sources of information simply weren't enough, or rather, provided too much useless information. Goldman found that the symptoms of the body hold much more weight in these decisions than anything else.

What Goldman figured out with his algorithm is one crucial aspect of this paper; the right information can be more important than a whole lot of other, less important trivia. The preconceived notion that more information leads to more accurate results is often wrong. In reality, more information will usually distract from the answers or drive one to the wrong conclusion. So how can we avoid creating such biases? To answer this we have to delve into the very nature of bias to try to understand where it is coming from and how we use that information, but I believe that fundamentally biases are rooted in society, and that the best way to create a bias-free, egalitarian community lies in societal fixes.

First, it's important to to understand what bias is. According to Oxford Dictionaries, bias is "prejudice in favor of or against one thing, person, or group compared with another." The word prejudice used here is defined, also by Oxford Dictionaries, as a"preconceived opinion that is not based on reason or actual experience." After looking at multiple online debates over the difference between prejudice and bias (http://forum.wordreference.com/showthread.php?t=2374218, https://answers.yahoo.com/question/index?qid=20080616055712AAlVxTk, http://www.ask.com/question/what-is-the-difference-between-bias-and-prejudice) it has become clear that the difference between the two words is very blurred. Both have negative connotations but are not exclusively negative, and both are used to define a non-objective opinion of something or someone. However, two very tentative differences between prejudice and bias are 1) the intention involved and 2) the source of these opinions. Prejudice is a preconceived notion that the holder of the prejudice is often aware of, and limits the acknowledgement of information to information that supports that preconceived notion. Bias, on the other hand, is an opinion concerning a person, groups of persons, or object that the holder of which is unaware of, and

does not come from limiting information but rather a lack of it. Prejudice has intention, whereas bias is held at a subconscious level. This is why you can find in scientific documents phrases such as "In this chemical reaction, you will see that iron has a bias towards forming bonds with oxygen." Iron does not form bonds with oxygen without reason, nor, obviously, does iron do it with intention; iron forms bonds with oxygen reflexively, automatically, thanks to the formation of the particles of each substance. Bias between people operates in a similar manner; without conscious input but not without certain logic. This isn't to say that biases aren't negative. They vary in usefulness, rarely benefit people, and more often than not are the cause of conflicts and the spreading of rather limited ideologies. However, biases do have some grain of truth, some crucial piece of information that causes us to reflexively act the way we do. The question to ask then is where is this logic coming from and being formed? The answer to that lies within one of the most basic mechanisms of animal life: learning.

Fundamentally, learning is the discovering of patterns. As infants, we are given sounds that go along with a certain type of shape, and we grow to refine that shape in the future. For example, how do we learn what a "bottle" is? We see a bottle, and are told that this is what is known as a bottle. Then we see other bottles, which are all slightly different from our primary bottle, and told that they too are bottles. So just from that we start looking for the basic features that characterize "bottles". A bottle, we find, is a general term describing manufactured hollow containers, often cylindrical in nature, that contain an opening for the removal of whatever fluid is contained within said bottle. Of course, the thought process of an infant is doubtlessly less cohesive than the previous statement, yet the essence is the same. The infant, from repeated exposure to certain situations, has found a pattern between a sound used when describing objects

and the shapes of the objects being described. Thus, in the future, the infant will be able to see a bottle, recognize its shape, and repeat the sound it heard used when describing the bottle (Chau).

While there are certain periods of critical brain development, learning is a lifelong process and not something that is predetermined at birth or limited to one's infancy and childhood. In fact, during the continuous series of interactions between the individual and their environment learning actually changes *the physical structure of the brain*. Knowledge literally molds you into who you are (Hammond, Austin, Orcutt, Rosso).

Using this example as a general basis for learning, we can define learning as more or less making sense of one's environment and stimuli. "Making sense" involves the drawing of connections between what is already known or understood and new information. This point right here is one of the driving questions behind this paper. *Where is the information that has been so well-learned it has become ingrained on a subconscious level come from?* In other words, *what are the roots of bias?*

This type of associative learning is one of the most fundamental of human behavior. This is how we learn to recognize when things are hot, what things are food, and how to behave. These lessons become more and more deeply ingrained in you as time goes on, eventually merging with the subconscious and requiring little-to-no conscious thought. They enter the realm that we call reflex (Hammond, Austin, Orcutt, Rosso).

re·flex

/ˈrēˌfleks/

noun: an action that is performed as a response to a stimulus and without conscious thought.

(Oxford Dictionaries: reflex)

We all have our own examples of reacting to situations without any conscious input. It may be anything from smacking someone who jumped out at you to scare you or sneezing because it's really bright out. For myself, an example of this was during one time when I was sledding. Two friends of mine were at the top of a hill, going together in an inner tube. They got in, but suddenly started slipping down the wrong way and were aimed straight for a pine tree. I was walking up the hill during this time, and I remember only having one conscious thought run through my mind before I acted, which was "tree." The next thing I knew I was smashing into said tree, serving as a buffer between my friends and it; I had taken in the entire situation in a second or less and without any second thought I dove between them and the tree.

I ended up with a minor concussion, but other than that everyone turned out fine. For a while after the incident I marveled at how my body really seemed to act on its own, as if all conscious thought was thrown out the window and replaced with a mass of instinct. It didn't take me long to realize that that was exactly it. My subconscious completely overrode my conscious, as if my body was suddenly put into auto pilot, and it did a surprisingly good job. This incident led me to start questioning the role and ability of subconscious comprehension.

Our current society is one where measured and reasonable decisions are valued much more than any subliminal rationale. Relying on instinct is barbaric and bestial, right? Wrong. In fact, we are much more instinctive and subconsciously-based beings than most people would guess. For instance, what if I were to ask you what judgments you make when you meet a complete stranger for the first time? It's a hard question, because whenever you first meet someone hundreds of thoughts fly through your head, analyzing and categorizing every minutia your eyes perceive. From skin color to nose shape to clothing, ever bit of information is used to make a rough estimate of who this person is. Of course, one rarely consciously observes and

reflects upon the significance of someone else's nose. Most of the information that your eyes pick up is being handled by your subconscious. In fact, the majority of the judgments we make are just as reflexive as when I dove in front of the sled; they just requires certain stimuli. The subconscious isn't faster at processing data, it just picks certain information that seems most relevant and goes from there, and there is a lot of stimuli for our biases to react to (Gladwell).

To conclude, the type of analyzing that's done when processing information on a subconscious level is the same whether you're trying to doing a puzzle, adjusting to a new environment, or diving out of the way of an oncoming object. This is what people call instinct, intuition, and gut feelings, and they're not some removed and mystical aspect of oneself, but rather very calculated and rational. However, the base difference between something like the a physical reflexive reaction and a biased perception of someone's appearance is the source of these proposed reflexes. The biases we have almost exclusively stem from cultural conditioning.

beau·ty

/ˈbyo͞otē/

noun: a combination of qualities, such as shape, color, or form, that pleases the aesthetic senses, especially the sight.
(Oxford Dictionaries: beauty)

Matt Kennedy, 24, is a public relations account executive in Orlando. However, there was a time when Kennedy was unemployed and having trouble finding a job that would accept him. Kennedy was not incapable of work. In fact, he seemed fairly desirable as an employee. What seemed to be the most detrimental factor to Kennedy's employment was his hair. Kennedy used to sport a modified mohawk, which is similar to a normal mohawk in general form, but with

hair still on either side of one's head. After connecting these dots, Kennedy decided to try toning down his hair. It definitely made a difference.

Today, Kennedy no longer wears his hair to work in a fashion that looks like a modified mohawk. Instead, he wears glasses and sweeps his hair to the side in a style he describes as a bit like Clark Kent. "Before, I was struggling to get a job. Then I got three job offers in one week," Kennedy said (Armour).

What is the significance of a positive review of physical characteristics? In other words, what are our eyes looking for and using as a basis for comparison, and how do our minds react when such aspects are seen? Well, to start out, a term coined to signify a pleasing appearance is "beauty", and the term generally used as a form of measurement for beauty is "attractiveness". One's appearance holds weight in many more ways than most people realize. People who are considered to be more attractive generally get much better treatment throughout their childhood; people tend to think better of them and act nicer to them, teachers will be more lenient, etc. This pattern also holds true in adulthood. Weight, height, complexion, eye color, state of facial hair, sex, clothing, all of these factors, and many more, are crucial aspects to one's perception by society.

These perceptions are even powerful enough to make the difference between success and failure. For instance, when Malcolm Gladwell polled half of the Fortune 500 companies on the height of their CEOs, he found the average male CEO to be 3 inches taller than the average man, standing in at just under 6' tall (Gladwell). Following up with that, a study done in 2004 by psychologist Timothy A. Judge and researcher Daniel M. Cable found that every inch of height equates to an income growth of approximately $789 per year (the study controlled for gender, weight and age) ("Tall People Make More Money"). Does this mean that taller men are any more

capable than average-height or shorter men? Not necessarily. What this primarily shows is that society associates height with success. In other words, this is a societal bias, one imposed upon us by social values through mediums like tv, magazines, video games, etc. Societal biases are often thrust upon us without us even knowing it, getting branded into our minds over extended periods of time, so that without even knowing it we perceive certain types of people certain ways. These perceptions dictate our subconscious reactions just as much as any of the reflexes mentioned previously, though much more subtly so. In fact, the Federal Reserve Bank of St. Louis conducted a study that shows a surprising wage gap between people with varying levels of attractiveness.

> A worker with below-average looks tended to earn significantly less -- on average 9% less -- per hour than an above-average-looking employee. And those with above-average looks tended to earn 5% more than their average-looking colleagues. (Armour)

There are several potential conclusions we can draw from this information:

1) People who are considered attractive are generally more favored in workplaces because of a societal bias, and thus are placed in higher-paying positions than the average person.

2) People who are considered attractive are generally more capable than the average person, and thus are placed in higher-paying positions than the average person.

3) Through some combination of both a societal bias and certain predisposed characteristics, people who are considered attractive are generally placed in higher-paying positions than the average person.

The first conclusion definitely has plenty of support just from common knowledge of society; we live in a world of appearances. There are also other studies that show a disparity between groups that seems to stem from societal standards. A study done in part by New York University sociologist Dalton Conley found that an increase in a woman's body mass results in a decrease in her family income and her job prestige. Men, however, experience no such negative effect. For women, a 1% increase in body mass as measured by the body mass index results in a 0.6 percentage point decrease in family income. This was sponsored by the National Bureau of Economic Research and based on 3,335 men and women (Shontell).

Does this poll indicate that the capabilities of women who are slightly more heavyset are less than that of lighter women, while men retain their general capabilities even with mass increase? That hypothesis is very hard to swallow, and my gut reaction would be to say that claiming weight determines worth is a very detrimental societal mindset and that it isn't a good measure of a person's talents. However, as detrimental as it may be, this *does* seem to be the way society operates

However, in many fairly recent studies lots of surprising information has come up to support the second conclusion, that our biases are there because they are built upon truths. Satoshi Kanazawa is a well-known collaborator in Psychology Today and has contributed many articles to it as well. Kanazawa also sports his own bio on the London School of Economics and Political Science's website. After quickly listing his contact information, at the top of the page there are three short phrases:

> "If the truth offends people, it is our job as scientists to offend them. *Wir müssen wissen, wir werden wissen.*"
> "If what I say is wrong (because it is illogical or lacks credible scientific evidence), then it is my problem. If what I say offends you, it is your problem."
> *Prepare to be offended.*

And it appears Kanazawa means it. He takes the very unusual (not to mention unpopular) position of attempting to prove stereotypes and clarify distinctions between people. These stereotypes and distinctions can be on race, gender, age, and just about anything else that people have biases on. One particular subject that seems to interest Kanazawa, and that he has written several articles on, is attractiveness, or *beauty*.

Beauty, using the definition provided previously, seems to be a very subjective matter. We all have individual preferences on appearances, on hair color, eye color, height, shape, weight, nose length, foot size, chin depth, etc. However, there is definitely a general trend in people considered attractive. For some celebrities like Orlando Bloom it would be *hard* to find someone who found him to be blatantly unappealing in his appearance. So what Kanazawa uses are generalizations on attractiveness, which is in this case analyzed in comparison to intelligence. I will also be operating under generalizations for the sake of forwarding a broad thesis, so as Kanazawa disclaimed, prepare to be offended.

There is a widespread perception that shared by many people that physically attractive people are more intelligent, as well as other such desirable characteristics. This belief is not specific to any age range, and even shows up in children as young as kindergartners. When asked to choose between two teachers to teach them, most kindergartners will choose the more attractive teacher, believing he/she will be nicer and more competent. This is also not a belief particular to gender. Men believe that women who are attractive are more capable and intelligent, and women also believe that women who are attractive are more capable and intelligent. The reverse is also true.

If this is such a widespread belief shared throughout the general population regardless of age and sex and other factors, is there any truth to it? Going back to our operating definition of

bias, which is that there is always some grain of truth hidden within our subconscious judgements, and especially when considering the prevalence of this bias, then it seems logical to answer yes. Kanazawa agrees, providing the following statement:

> Sociologists and social psychologists, convinced (and politically predisposed to believe) that "beauty is in the eye of the beholder" and "beauty is only skin deep," dismiss this widespread perception as "bias," "stereotype," or "halo effect," with the implicit assumption that the perception is not accurate and has no factual basis. It *is* a stereotype that beautiful people are more intelligent. But… virtually all stereotypes are empirically true; if they were not true, they would not be stereotypes in the first place. And it turns out that this one is no exception. *People believe beautiful people are more intelligent, because they in fact are.* – (Kanazawa)

The National Longitudinal Study of Adolescent Health (Add Health), takes the second option, that biological and genetic influences are a major source of biases, very seriously. Conducted by the University of North Carolina – Chapel Hill, Add Health compares the attractiveness and intelligence of it's respondents. Between 2000-2001, Add Health conducted a two-step exam. Firstly, respondents took an IQ test called the Peabody Picture Vocabulary Test. Next, the respondent's physical attractiveness is measured on a 5-point scale objectively and without knowledge of the results of the respondent's IQ test results. The results, out of a sample size of 15,197 people with the mean age of 22, was as follows:

> The mean IQ is 94.2 for those rated "very unattractive," 94.9 for those rated "unattractive," 97.1 for those rated "about average," 100.3 for those rated "attractive," and 100.7 for those rated "very attractive." – (Kanazawa)

This data provides strong evidence for the second option of bias analysis. In fact, this coupled with Kanazawa's previous statement makes for very significant data contrary to many of the previous examples. However, let's go back to the example of the average height of CEOs of

Fortune 500 companies. While previously I said that taller people are not necessarily more capable, there is evidence that very strongly speaks to the contrary. And similarly to the case of intelligence and attractiveness, the question of "why?" remains.

A study from 2001 by researchers Andrew Postlewaite, Nicola Perisco, and Dan Silverman from the University of Pennsylvaia supports the first option. They found that the height a person has as a teenager is the best measure of income as an adult. "Two adults of the same age and height who were different heights at age 16 are treated differently on the labor market," Postlewaite, Persico, and Silverman stated. "The person who was taller as a teen earns more." They go on by saying they believe that the reason the height of a teenager influences pay so much can be explained by the influence height has on social standing, and the social skills one develops as an adolescent. "Those who were relatively short when young were less likely to participate in social activities associated with the accumulation of productive skills and attributes, and report lower self-esteem," (Donohue). These skills are very important to creating a strong corporate image, and those with low self-esteem and weak social skills will be seen as less authoritative and desirable as an employee.

However, it appears not to end there. Princeton economists Christina Paxson and Anne Case published a study in 2006 that offers a very blunt explanation for why taller people experience a greater income, which is that they're just smarter. "As early as age 3 -- before schooling has had a chance to play a role -- and throughout childhood, taller children perform significantly better on cognitive tests," Paxson and Case state (Donohue). They reference that as they bring up the importance of nutrition in early development. Eating healthy foods and good portions goes a long way for both height and cognitive ability, so claiming that there's a marked

correlation is not hard to see. One's potential intelligence may very well be a direct result of the nutrition one received while in the womb and during their first three years of life.

Some people think that the success of taller people is even more basic than that. In the study by Timothy A. Judge and Daniel M. Cable determining the ratio of height to wealth (mentioned previously), Judge also speculated that this disparity between tall people and average-height/small people may be a result of societal biases during the founding of societies themselves. "Perhaps when humans were in the early stages of organization, they used height as an index for power in making 'fight or flight' decisions," Judge explained in an interview. "They ascribed leader-like qualities to tall people because they thought they would be better able to protect them. Evolutionary psychologists would argue that some of those old patterns still operate in our perceptions today," (Donohue).

So what do the findings of these studies on height and success have to do with the origin of bias? Everything! If we look at these three theories as to why taller people make more money, we find that they all promote option two, that this group has this bias because they are inherently that way, but we find that the roots of these inherencies lie within social factors, like option one. To go back to our example of beauty as an indicator of option two, we also found that there are strong roots lying in option one, just like with the height-to-success studies. Kanazawa says as much in the conclusion of his article with what he believes to be the most likely reason for attractiveness to be representative of intelligence:

> [T]he association between intelligence and physical attractiveness may emerge from the process of assortative mating of intelligent men and beautiful women, and of less intelligent men and less beautiful women. Because both intelligence and physical attractiveness are heritable, such assortative mating should create an extrinsic (non-causal) correlation between intelligence and physical attractiveness in the next generation. – (Kanazawa)

Why intelligent men and beautiful women? Because society expects that. Men are considered to be truly successful in life when they have lots of money, nice cars, and, of course, an attractive wife. And financially successful men generally have those things, as well as the intelligence to get where they are (there are undoubtedly other factors that come into play for monetary success, but for the sake of avoiding digression from the topic we will not get into that now). Kanazawa continues by stating that there is empirical evidence supporting his theory (as well as my explanation), saying that "[m]ore intelligent men *do* attain higher status than less intelligent men; higher-status men *do* marry more beautiful women than lower-status men; intelligence *is* heritable; and physical attractiveness *is* heritable," (Kanazawa).

To summarize, people who are seen as attractive are generally perceived as more intelligent and capable. They receive this bias because for the most part it is true; people who are seen as attractive generally *are* more intelligent and capable. What Kanazawa points to as the source of this bias, of the reason why beautiful people are smarter, is through assortative mating. What this means is that people who are successful are often smart, and people who are successful also often find attractive spouses drawn to them by their opulence. Kanazawa points out that both beauty and intelligence are heritable factors, and that this theory of his lines up very well with data that has been collected from numerous sources. Similarly, being born into a very successful family, one will have many more resources, and generally resources of a high quality, than those born into less successful families. These resources can go a very long way early on in development, as we saw in the evidence provided by Paxson and Case in their theory for why tall people are more successful. There are countless other factors that go into this I'm sure, but these reasons make the bias that intelligence and attractiveness are related a truth, and are a result of social conditioning.

So now that we can say with a fair level of confidence that biases stem from social conditioning that has been accepted on varying levels in society, ranging from a prejudice not held very widely to a genetically inherent fact, how do we regulate our biases and mend the injustices that they promote? If they're a result of society, then the fix lies in societal changes.

On a societal level, I believe the best way to correct this is through the implementation of systems designed to limit our intake of information that causes most of us to make incorrect snap decisions. If we are constantly being conditioned to believe that life falls into a certain order, then the best way to create a more egalitarian society is to destroy that order and remove the practices instilling such concepts into our heads. To end with another great example used by Malcolm Gladwell to illustrate this in his book *Blink* is that of women in orchestras.

The orchestra was always thought to be a place for men. Men had the better lung capacity, men had the better focus, and men had the better dexterity. This was not a sexist mindset, this was simply fact; over hundreds and hundreds of recitals it was proven time and again that men simply played most instruments better. Men played the French horn and the tuba and the trombone, and women could not. Women could play the clarinet and violin, but men could also play those, and often did with greater success. There was no question. Then one recital in 1980 changed everything.

Abbie Conant, a professional trombone player, received a letter from one of the eleven orchestras she applied for. This one was from the Munich Philharmonic Orchestra, and it started with "Dear Herr Abbie Conant," which in English reads as "Dear Mister Abbie Conant." Conant attended the audition nonetheless, which would turn out to be a screened audition, a rarity in Europe at that time. One of the contenders for the position in the Philharmonic Orchestra was the son of someone in one of the Munich orchestras, and so to avoid displaying any shows of

favoritism a screen was set up so that the judges would have absolutely no idea of who was playing. Conant came on stage and outplayed everyone else. After a quick conferral, the judges decided to send the rest of the contestants home; they had found their musician. And this is where it gets interesting. You see, the trombone had always been known as a male role. Yet when the curtain was raised, there was no man standing before the gaping judges, but rather a woman.

This is now the common practice of recitals, to screen the musician from the sight of the judges to avoid having anything deter or distract from the musical talent. In fact, modern practices have gone one step further, by assigning a number to each contestant, and if the contestant speaks or makes any noise that might give away information of who was playing, the contestant is taken offstage and given a new number.

This is just one example of society changing to match the growing awareness of our own ineptitude at being completely unbiased. Conant had to fight and kick back with everything she had to keep that position in the orchestra. Even though the judges were completely wowed by Conant's playing, they could not accept her as a proper musician. Conant endured 16 years of fighting their biases with lawsuits. It was by no means simple or easy, but she endured and she was an agent of change who has greatly reduced the number of people who go through what she did. Laws are in place to prevent a complete predominance of a certain type of person in a profession, to allow for equal opportunity, or at least as much is possible.

Of course, as we all know, laws fail. They only have as much weight as people give them. That's why it's also important to battle your biases on an individual level as well, and the best way to battle those biases is by acknowledging their existence, understanding their roots, keeping an open mind, and working for societal change if and when you can. If you've learned

something over and over, the best way to get rid of that information is to learn something else in that place over and over. Information cannot simply be deleted from our minds like on a hard drive; what needs to happen is that that information be seen as outdated or useless and replaced by a newer set of instructions.

"Suppose you're at a party and someone tells a racist joke—and you laugh," said Margo Monteith, a psychological scientist. "Then you realize that you shouldn't have laughed at the joke. You feel guilty and become focused on your thought processes. Also, all sorts of cues become associated with laughing at the racist joke: the person who told the joke, the act of telling jokes, being at a party, drinking. The next time you encounter these cues, a warning signal of sorts should go off—'wait, didn't you mess up in this situation before?'—and your responses will be slowed and executed with greater restraint," (Paul).

The significance of Monteith's research is that it is possible to consciously override one's own biases. With enough time, the prevention of automatically adhering to one's bias may in itself become a subconscious process. The greatest drawback of this practice's potential is how much it depends on the individual's wish for change. If there's no motivation and no conscious part of someone critically analyzing that person's thoughts and words, then there will be no opportunity to suppress biases, and as a result there will be no societal changes. While biases may all stem from society, without the wish for change at an individual level nothing will get better. If you can't find the motivation for change from the knowledge that hundreds of millions of people are getting less than what they deserve due to unfair societal standards placed upon them, at least consider the fact that you yourself are not immune. Even has some level of bias against everyone, and so working towards a more egalitarian society benefits everyone, no matter what place they hold in society.

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