

Cognitive Dissonance within the Realm of Implicit Bias

by

Shelby Luptak

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## LITERATURE REVIEW

According to research professors from Harvard University, one's individual actions will affect his fundamental preferences or beliefs. This is in compliance to cognitive dissonance theory, which posits that an "individual experiences a mental discomfort after taking an action that seems to be in conflict with his or her starting attitude" (Acharya, Blackwell, & Sen, p. 2). Individuals will then choose to subconsciously change their attitudes or beliefs to "conform more closely with their actions" (Acharya et al., p. 2). In other words, from a starting attitude, one makes the decision to engage in contradictory behavior, which results in a change of the initial attitude. In accordance with this illustration, researchers from Stanford and Harvard University, assert that one's attitudes are "often the consequence of actions" (Acharya et al., p. 2). An individual's actions may not reflect his initial fixed preference, but one is then able to adjust his attitude to justify his behaviors. Basically, cognitive dissonance theory helps support the idea that actions can dictate beliefs.

A team of researchers from Yale, Egan, Santos, and Bloom, have conducted several experiments concerning cognitive dissonance. They define cognitive dissonance as a "psychological state in which an individual's cognitions—beliefs, attitudes, and behaviors—are at odds" (Festinger, 1957). The main question that Egan, Santos, and Bloom attempt to answer is the origin of cognitive dissonance. In the study, their goal is to "examine whether children and nonhuman primates, like human adults, would shift their attitudes to fall in line with their decisions" (Egan, Santos, & Bloom, p. 979). Adapting from the free-choice paradigm conducted by Brehm in 1956, Yale researchers produced a nonverbal experiment testing individuals' preference to change attitudes after making dissonant decisions. Researchers assess each test subject's original preference for similar objects and determine three that are equally attractive to

the individual, A, B, and C. In Phase 1, each subject is given objects A and B and have to choose between them, causing dissonance, since both objects are equally preferable. In Phase 2, the subject is given a choice between the object they did not select (A or B) and C. The hypothesis was that once a subject chooses either A or B, their liking for the unchosen object will decrease. Therefore, in Phase 2, they will choose object C more, due to their attitude change with the unchosen object in Phase 1. The action of choosing either A or B, which originally were equally liked objects, will decrease the subject's preference towards the unchosen one. The researchers test this first on 30 4-year-olds, using adhesive foam stickers as the objects. The results reveal that 63% of the time choice C is preferred. The same experiment layout is also used on capuchin monkeys. Experimenters measure the monkeys' preferences for different colored M&Ms, and use equally preferred triads of M&Ms, specific to each monkey, as the objects. The results are similar to those of the children, revealing that 60% of the time object C was chosen. Egan, Santos, and Bloom conclude that, like adult humans tested under similar experiments, both children and monkeys seem to "derogate alternatives they have chosen against, changing their current attitudes and preferences to more closely match the choices they made in previous decisions" (Egan et al., p. 982). The experiment demonstrates that the process of making a choice itself induces preferences. It can also be inferred that the drive to reduce dissonance is an innate part of core-knowledge development, consistent across "cultures, ages, and even species" (Egan et al., p. 982). Many core-knowledge mechanisms, such as numerical understanding and language capacity, operate without the need of higher-level processes that human adults possess. Therefore, it is speculated that cognitive dissonance reduction does not require higher-level cognitive functions and may be more automatic and mechanistically simpler than previously suspected (Egan et al., p. 982). It seems that this is an inherent cognitive function to relieve

cognitive stress when making decisions that contradict attitudes and biases.

A similar experiment was conducted in Tokyo, Japan, in Keio University's Psychology Department. Researchers examine how changes in choice cause preferences. As the Yale study explains choice-induced preference change within cognitive dissonance theory, researchers in Tokyo attempt to explain the preference change through the lens of self-perception theory. Within this theory, it is assumed that individuals "come to know their own preferences by inferring them from observations of their own behavioral choices" (Nakamura, p. 1). The main difference between the two theories is the motivation. The pressure to reduce cognitive dissonance is the central point of cognitive dissonance theory, while there is no motivational pressure present within self-perception theory (Nakamura, p. 1). Both theories predict a preference change after a choice is made, dictating that actions control beliefs. The four experiments done by the Tokyo researchers use facial images for the choice options. In Experiment 1, investigators test whether subjects change preferences even when choices are made randomly and blindly. Subjects sit at a computer screen and are shown two facial images side by side. They quickly choose their preferred face between the two. They are tested to see if their facial choices remain consistent throughout the testing period. It is revealed that even when choices are not guided by pre-existing preferences (blind choices), the chosen facial images come to be preferred most of the time (Nakamura, p. 3). In Experiment 2, subjects are told to choose their un-preferred face between the two options, rather than their preferred face option. According to cognitive dissonance theory, acknowledging an option as un-preferred should cause a negative disposition towards it. However, the data in Experiment 2 did not reveal any pattern of consistently choosing the same un-preferred face. Some suggest that this is because the act of liking and disliking something use different cognitive functions. Therefore, the separability in

choosing preferred and un-preferred options may constrain the impact that un-preferred choices have on preference formation (Nakamura, p.7). In response, researchers then test whether post-choice preference change can be “triggered by the mere act of choosing”, not directly relating to choosing a subject’s preference (Nakamura, p. 4). So, in Experiment 3, subjects are told to choose their preferred face in some trials and the rounder face in other trials. Results show a significant difference in the faces chosen when asked to pick their preferred face and when asked to pick the rounder face. Therefore, the mere act of choosing a face independently of one’s personal preference (roundness) was not significant enough for choice-induced preference change. Requiring subjects to sometimes choose a rounder face did not affect their choice when making their own preferred face decision. Lastly, in Experiment 4, subjects are told that the choice they make between the two facial images does not have to actually reflect their preference. The results reveal that even when participants explicitly understand that their choices do not have to be based on their own preferences, choice-induced preference change persists (Nakamura, p. 6). The results of these four experiments can be explained by self-perception theory in which it is “assumed that individuals estimate their preferences by inferring them from observations of their own behavioral choices” (Nakamura, p. 7). Participants see their choices as informative, and prefer to pick the same choices from then on. However, as seen in experiments 2 and 3, the choices must be their preferred option and of their own decision making to induce consistent post-choice preferences. Furthermore, these experiments can be explained through the lens of cognitive dissonance theory as well. Individuals are motivated to cope with their blind choices (“I chose this one”) by increasing their preference for the—seemingly irrational—blindly chosen face. The test subject will continue to prefer the same facial image to reduce the dissonant cognitions. Overall, the implications of these four experiments lead to the conclusion

that people are tempted to make biased evaluations, even while unaware of the “origin of their own preference” (Nakamura, p. 8).

According to these experiments and several others, it seems that one’s actions (particularly within choices) could permanently effect his preferences or beliefs. As stated from researchers in Tokyo, the act of choosing in itself “might enhance commitment to the chosen options, resulting in a fondness for the chosen option” (Nakamura, p. 2). However, the examination of where these seemingly irrational choices derive from begs to be investigated. The rationality of an individual’s choice might be explained through implicit bias. According to Ohio State University’s Kirwan Institute, implicit bias, or social cognition, refers to the “attitudes or stereotypes that affect our understanding, actions, and decisions in an unconscious manner” (Kirwan). Basically, these unconscious attitudes or beliefs may cause actions that do not align with one’s declared beliefs. These biases are outside of an individual’s conscious control or awareness, and for the most part are not accessible through introspection. Everyone possesses implicit biases, not necessarily reflecting one’s declared beliefs. According to Kirwan Institute, implicit biases seem to develop over the course of a lifetime, “beginning at a very early age through exposure to direct and indirect messages,” such as news programming and other media. Though implicit bias is not easily identified on one’s own, Project Implicit, a non-profit organization, provides a test to “educate the public about hidden biases.” Since the foundation of the project by three scientists in 1998, Project Implicit has created an “international collaboration between researchers who are interested in implicit social cognition,” which they define as “thoughts and feelings outside of conscious awareness and control” (Project Implicit). Project Implicit attempts to determine one’s implicit bias through measuring one’s strength of associations between concepts such as race, gender, age, and religion (Project Implicit). The

Implicit Associations Test (IAT) is based on the expectation that a stronger relationship between two or more categories (such as Asian-American and foreign versus European-American and American or vice versa) are “cognitively more easily accessible than weaker associations” based on reaction times for pairings (Gündemir, Homan, Dreu, & Vugt, p. 1). The IAT measures the attitudes and beliefs of people who may be unwilling or consciously unable to determine.

Frequently, the test reveals implicit attitudes one had no idea existed. One’s implicit biases may be in opposition to one’s explicit attitudes, which are deliberately thought and reported about. For instance, even if one states a conscious explicit attitude, his unconscious implicit attitude may reveal contradictory associations. It is possible for one to assert that he likes math, his explicit attitude, while he actually associates math with negativity without realizing it. That would be his implicit attitude. These attitudes lead into the idea of stereotypes. It would be easy for one to consciously believe and admit that he does not view women as inferior, however his implicit stereotype toward women may reveal differently. A definition given by researchers at Project Implicit state that implicit biases are not endorsed and may even be contradictory to what one consciously believes. Therefore, one’s unconscious attitudes might logically lead to his behavior (Project Implicit).

Relating back to cognitive dissonance theory, one’s implicit biases may actually be the cause of cognitive dissonance. According to Kirwan Institute, implicit biases, residing deep within one’s subconscious, will cause feelings and attitudes about other ideas or people, “based on characteristics such as race, ethnicity, age, and appearance.” Though one may not consciously view black people as inferior, if one’s implicit bias believes black people are inferior (due to culture or media), then his actions will follow his implicit bias and he may actively do or say things that are against his conscious beliefs. This is where cognitive dissonance steps in, causing

individuals to feel conflicted about their actions and said beliefs, and, according to cognitive dissonance theory, an individual changes his conscious beliefs to align with his actions. The researches at Harvard and Stanford Universities concur, stating that this is a probable cause of continued racial prejudice. Individuals who commit violence against members of another group will develop hostile attitudes towards their victims to justify their actions. This decreases their inclinations of cognitive dissonance, providing a sort of comfort and internal reasoning (Acharya et al., p. 22). In effect, their attitude will take a drastic change and continue even after the violence itself declines. According to the researchers at Stanford and Harvard, elites can use this as a way of “fostering in-group solidarity and furthering anti-outgroup attitudes” (Acharya et al., p. 23). In an experiment produced through the University of Amsterdam, researches test implicit associations between leadership roles and ethnicity. Through four studies using IAT testing, they uncover that leadership roles are more strongly associated with White-majority, due to one’s automatic and unconscious attitudes (Gündemir et al., p. 1). The research group at the University of Amsterdam argue that “frequent experiences with White-leaders have created a pro-White leadership bias in the Western world,” which account for the underrepresentation of racial-ethnic minorities in leadership positions (Gündemir et al., p. 7). Those that do not fit the image or prototype of a leader are viewed as less capable, implying that implicit bias derives from society itself. Since the experiment included ethnic minorities in their data, this internalized pro-White leadership bias is not only evident in ethnically white subjects, but ethnic minorities as well.

Testing of sorts has been done concerning the changeability of an individual’s implicit bias and how it affects his actions. In April 1968, the day after Martin Luther King Jr. died, Jane Elliott’s third grade class in the small town of Riceville, Iowa were taught an important lesson on discrimination. Elliott divided her third graders into blue eyes and brown eyes. On the first day,

the children were told that those with blue eyes were scientifically “smarter, nicer, neater, and better” than those with brown eyes (Frontline). They were given privileges such as extra recess and getting first in line. While blue eyes were praised and rewarded, brown eyes had to wear collars around their necks and were told by Elliott that blue eyes were better than them. Throughout the day, kids who were once sweet and tolerant began teasing their fellow classmates who had brown eyes, seeming to enjoy discriminating against the ‘inferior’ group. The next day, the roles reversed, and brown eyes became the superior group. The same discrimination occurred towards the blue eyed inferior group, even after the brown eyes had experienced the pain of segregation the day before. The third year Elliott conducted this social experiment within her classroom, a documentary crew filmed the whole operation they later titled “A Class Divided.” In the documentary, Elliott responded to the children’s reactions saying she witnessed “what had been marvelous, cooperative, wonderful, thoughtful children turn into nasty, vicious, discriminating little third-graders in a space of fifteen minutes” (Frontline). The new knowledge of which color of eyes were superior distinctly affected not only the children’s beliefs, but also their actions. Once they accepted the discriminatory information as fact, their actions followed suit. Discrimination originated first within their minds and was then used to continue to justify their prejudiced actions. Not only did the superior group harass and ridicule their classmates, the inferior group succumbed to the expectation they were not as smart, and performed worse “on tests and other work” than on the day they were regarded as the smarter group (Frontline). This leads to the belief that what one is told he is worth or what is expected of him truly affects his work ethic and self-perception. The kids must decide if their actions will coincide with the ‘truths’ they have been told about their own worth and the worth of their classmates. The bias is implanted and associated actions result. Conclusively, it is clear that

one's implicit bias towards others can be transformed.

## CONCEPTUALIZATION

It is clear from several of the experiments above that once one makes an explicit choice, he tends to remain consistent with that choice. However, what about choices made implicitly? Can those unconscious choices be changed? Cognitive dissonance is the idea that an individual experiences mental conflict after taking an action that contradicts with his said beliefs. An individual's unconscious bias may also challenge his conscious perceptions. These implicit biases may be so imprinted into an individual's mind that he does not realize he possesses certain prejudices. I am interested in testing whether an individual's implicit bias can change temporarily. There are hundreds of different biases one could possibly have, so I have chosen to specifically focus on racial bias. The Implicit Associations Test provided by Project Implicit offers several IATs one can take including sexuality, gender, age, and disability. This experiment utilizes the race IAT which analyzes whether one associates good words (i.e. joy, happy, favor) or bad words (i.e. terrible, awful, ugly) faster with the word "African American" or "European-American." After individuals take the Race IAT the first time, there must be a stimulant that they are exposed to, hopefully causing some kind of emotional or intellectual response. We chose to have students watch the Oscar winning film "Crash," directed by Paul Haggins in 2004 for the stimulant after their initial IAT (IMDb, 2004). We chose to have students watch an entire movie, as opposed to simply a movie clip, in hopes it would make a greater impact and leave a lasting impression on students. This specific movie was chosen because it asks "hard questions about racism on an individual level" and shows harsh realities that are usually avoided on the big screen (Goyette, 2011). The movie proposes the "unending pressure of casual racism" as an everyday occurrence, and something that can simply be shrugged off or "confronted with

righteous anger” (Tucker, 2004). Haggins reveals racial conflicts bubbling beneath the surface of contemporary culture, colliding political and social issues, leaving the audience questioning their own biases and motives. Therefore, this movie is an ideal option to affect students emotionally and intellectually. After watching the movie, individuals will take the Race IAT again and see if their results have shifted. The results of the IAT for race range from strongly prefer black, moderately prefer black, slightly prefer black, no favor, slightly prefer white, moderately prefer white, and strongly prefer white. Since individuals of multiple races are taking this test, there must be some way to conceptualize the levels of preference that transfers from race to race so one can easily compare the results. So, the levels of preference were assigned numbers from -3 to 3, specific to each race. In example, the corresponding test preference results and assigned numbers for an African-American taking the IAT go from -3 (strongly prefer white), -2 (moderately prefer white), -1 (slightly prefer white), 0 (no favor), 1 (slightly prefer black), 2 (moderately prefer black), and 3 (strongly prefer black). For a European-American taking the test, the data results would go from -3 (strongly prefer black), -2 (moderately prefer black), -1 (slightly prefer black), 0 (no favor), 1 (slightly prefer white), 2 (moderately prefer white), and 3 (strongly prefer white). The greater the number, the stronger preference one implicitly feels toward his own race. Now the preference levels can be easily transferred into data tables and looked at comparatively from race to race and can pinpoint any resulting change.

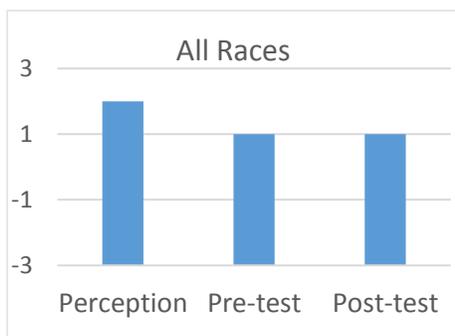
## RESEARCH EXPERIMENT

Students from a Minority Studies class taught by Professor Ryan Button at Tyler Junior College were chosen to test if one’s implicit bias toward race can be temporarily changed. Twenty-nine students participated, 15 females and 14 males. In this class, there were students who were other races besides African-American and European-American, such as Hispanic. This

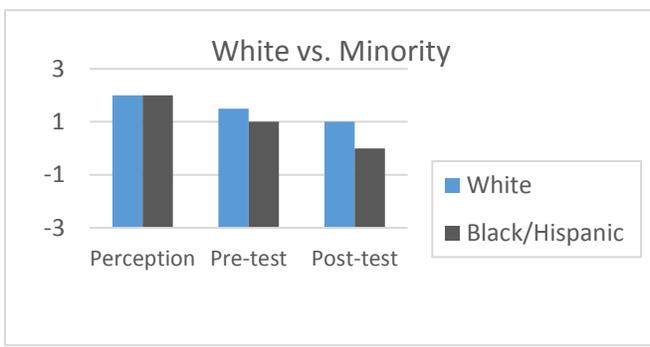
was a problem because the IAT for race was specifically testing associations between black and white, not Hispanic, or any other race. So before any testing, students were split into two self diagnosed groups: white or minority, which included both African-American and Hispanic. For the purposes of the experiment results, any race besides European-American (white) was viewed as more closely associating with African-Americans. Then, each student initially reported what they think their racial preference is. They chose from strongly prefer white to strongly prefer black. This can be viewed as one's explicit bias. Next, students took their first Race IAT and reported their results. To produce a change in ones' implicit bias, an individual must experience a strong stimulant. The film "Crash" was chosen for students to watch, with the intent of creating some kind of reaction that would affect the students' implicit bias. The movie characterizes stereotypes individuals have, whether consciously or unconsciously, of other races. After watching them movie, students take the IAT for a second time and report their results. If this is a strong enough stimulant, when students take the IAT again after watching the movie, a change in racial preference will be seen. I hypothesized that if a student's first IAT result was a strong or moderate preference, there would be no change, but if the student's first results were moderate or less, there would be some change in implicit bias towards race. This would be because if a student has a firm preference concerning race, simply watching a movie is not enough of a stimulant to cause a significant change. If a student's preference is not as firm, then their implicit bias would be more susceptible to change, though I hypothesize their bias will not completely shift spectrums and become totally become an opposite preference.

## ANALYSIS

After gathering all the data from this experiment, the results were categorized between gender and race. Several graphs were made using the median of each data set. The first graph shows all the races together. There is a clear dissonance between what students consciously think they prefer (Perception) versus what the first IAT (Pre-test) results say they prefer. This shows there is in fact an implicit bias students do not realize or account for.



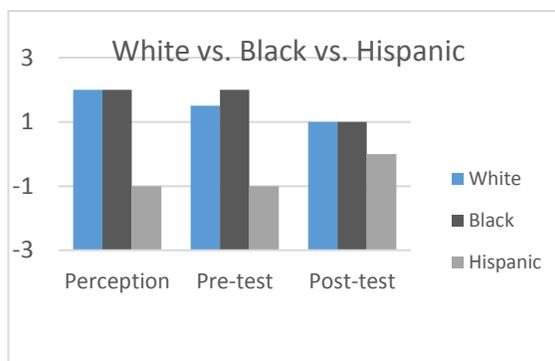
However, beyond the slight change from Perception to Pre-test, after watching the movie “Crash,” the Post-test results did not show any change when the median data from everyone was calculated. It seems that overall, students did not experience any emotional or intellectual change after watching the film. So, we then decided to separate the data into white and minority (African-American and Hispanic). Once these races are divided, there is a greater change seen from blacks/Hispanics after taking the Pre-test and after watching the movie than whites. It is interesting that, according to this graph, the minority group had a greater emotional or intellectual reaction to the film and



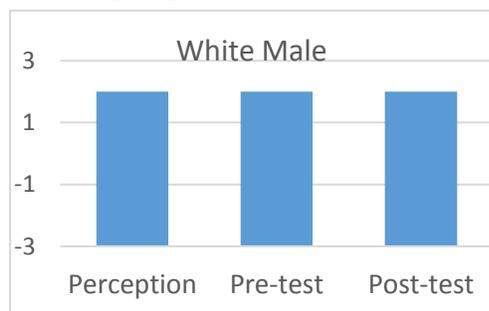
began to associate a small amount more toward “no favor” than the overall data of whites. We then separated the data even further into whites, blacks, and Hispanics and the data became even more significant.

From this graph, the considerable difference of Hispanics from the other races is clearly seen. Even though we grouped Hispanics in the minority group with blacks, they consciously stated they slightly prefer white in their Perception. Overall, even when Hispanics take the IAT for the

first time, the results show they still slightly prefer white. This is clearly the opposite of who we thought Hispanics would identify with. It is also compelling that after watching the film, Hispanics' IAT results changed from slightly



prefer white to no favor. Overall, they were not subconsciously drawn to either side by the Post-test, while both white and black continue to prefer their own race slightly. It is apparent that Hispanics may feel like they have nowhere to align themselves, so they unconsciously adjust their preference toward the white race, possibly because they feel they have superiority in America. It may seem to them like choosing between just one piece of cake or the whole cake. Therefore, according to the data, it is clear Hispanics explicitly and implicitly show a feeling of alliance more toward whites rather than blacks. After dividing the data into each race, we factored in gender. Each race was individually split into male and female data. There are four to seven people in each data group, so it would be necessary to gather information from a larger student group to have a more accurate analysis. Nevertheless, the graphs formed display



significant concepts. For white males, there is, almost humorously, no change during the whole process.

According to my hypothesis, I proposed that if one had an initially moderate to strong preference toward a race,

there would not be any change after watching the movie due to the individual's implicit bias being so ingrained into his judgment. My hypothesis holds true for white males. However, it is still interesting that their conscious perception is the same as their results for the initial implicit

bias test. For white females, the results appeared a bit differently. White females consciously



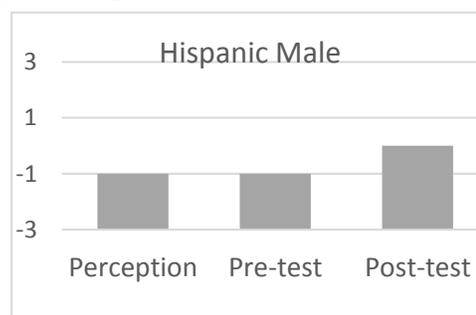
perceived they had a moderate preference for whites, however when they took the first IAT, the results showed they only slightly prefer whites. It is almost as if white females overcompensate their prejudice against

other races, thinking they have a greater underlying preference for whites than they actually do.

It is also interesting that overall, for both white females and white males, there is no change in preference after watching the film. Even though in the graphs above, displaying all the races, it appears that whites have a slight change after watching the movie, when the data is split up into genders, it is apparent there was not as significant a reaction. It is possible that if whites feel a strong common superiority and preference toward their own race that a more powerful stimulant is necessary to cause a temporary change in implicit bias for whites. Looking specifically at Hispanic males and females exposes a different viewpoint of where Hispanics align themselves.

It is interesting that Hispanic males have both a conscious and initial implicit favor of slightly preferring whites. However, Hispanic females consciously and implicitly have no favor towards white or black. This could be due to gender roles they

may feel they have to fit in to. There is a larger percentage of Hispanic males in the work force versus females, so they may feel they have to comply to the

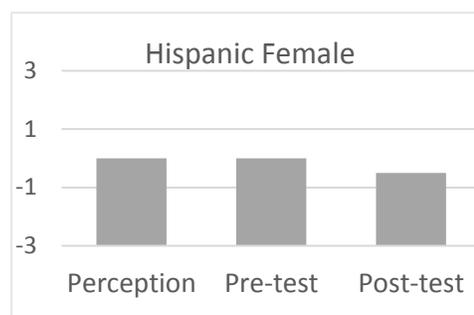


alleged social standards of white superiority, so they not only implicitly but consciously favor whites more than Hispanic females. It is also significant to examine the difference of preferences Hispanic males and females displayed after watching the stimulant. Males went from slightly preferring whites to no favor. These results would make sense and align with my hypothesis.

After watching the movie, Hispanic males reacted in a way that brought them out of preferring one race more than another and implicitly show they have no bias toward white or black.

However, Hispanic females again present some different results. They went from no favor of either race to in between no favor and slightly prefer

whites. Their data result for the Post-test was -0.5, which is in between 0 (no favor) and -1 (slightly prefer whites). This is interesting considering they began with consciously and implicitly having no favor for white or



black, which one could safely conclude is the choice position (having no bias toward either race), and then ended up having a slighter preference toward whites. It would be interesting to see their

explicit results after watching the movie to examine if they consciously perceived the movie

differently from their implicit bias results. For some reason, the film appeared to cause a more

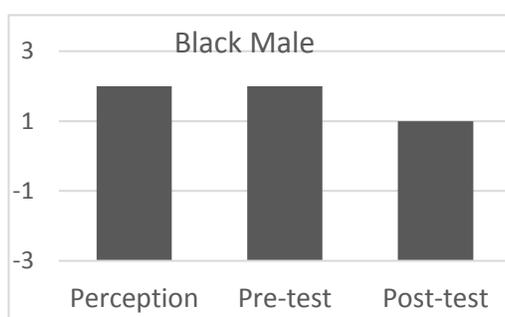
emotionally compassionate response toward whites than blacks and therefore resulted in a

slightly greater preference for whites. Examining the result of black male and females also

revealed interesting results that differed from the other races' genders. Black males had similar

results to the white males in their moderate preference toward their own race, both consciously

and in the initial implicit bias test. However, different from white males, black males



experienced a change after watching the movie, moving

from moderately preferring black to slightly preferring

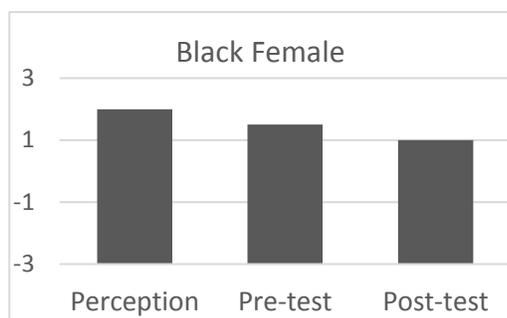
black. Considering they began with strong moderate

preferences it is intriguing to see they did have a change

in perception, especially since white males had no change

at all. This could possibly be due to blacks not having as strongly ingrained impression of

racial stereotypes and bias as whites. Or they may have connected more emotionally with the stimulant and found it more relatable than whites did. Black females also began with a conscious



perception of moderately preferring blacks. Like white females, their Pre-test results revealed their implicit bias was not as strong towards their own race. They shifted from a moderate preference of blacks to between a moderate and slight preference of blacks (1.5). Like

black males, black females resulted in slightly preferring black more than whites after watching the movie. Again, it is intriguing that for black females there was an obvious change after watching the stimulant, unlike white females. It is apparent that blacks, as a whole, experienced more powerful responses toward the movie than whites.

#### CONCLUDING THOUGHTS

From the first graph “All Races,” it appeared as though there was not much change. Once the data was sectioned out, the results became much more significant. Whites appeared to not be greatly affected by the movie. This may be due to their implicit feelings of superiority and white supremacy. As a minority group, Hispanics found alignment with whites rather than blacks. This could be associated to Hispanics wanting to align themselves with the race they implicitly perceive as superior. Blacks experienced some emotional or intellectual response to the stimulus that brought them closer to a neutral bias. Males, across all races, had no change from their initial perception to their first implicit bias results. This may reveal that males are more in line with their implicit biases, that their unconscious preferences are the same as what they consciously perceive. Females, on the other hand, obviously experience a greater gap between their explicit and implicit preferences. This may reveal they have a deeper suppression of implicit biases.

There are several improvements that could be done to further the study of changing one's implicit bias. One thing I wish I could have improved on is a larger amount and broader range of research subjects. However, I think the choice to show the movie "Crash" was a satisfactory choice in temporarily changing the students' implicit bias. Furthermore, it would be especially meaningful to investigate whether it is possible to permanently change someone's implicit bias. This would involve experimentation over a period of months, even years. A stimulant stronger than watching a movie would obviously be imperative. It would be more impactful if one actually experienced something tangible rather than simply watching something to solicit a permanent change. It would also be interesting for future studies to test how one's perceptions and biases actually affect one's actions. If there is any cognitive dissonance, does this occur due to implicit biases or conscious perceptions? Does a realization of one's implicit bias cease cognitive dissonance? These could be important questions to ask for future studies.

## References

- Acharya, A., Blackwell, M., & Sen, M. (2015). *Explaining Attitudes from Behavior: A Cognitive Dissonance Approach*. Retrieved from <http://scholar.harvard.edu/files/msen/files/cognitive-dissonance-theory.pdf?m=1432837679>
- Egan, L. C., Santos, L. R., & Bloom, P. (2007). The Origins of Cognitive Dissonance: Evidence From Children and Monkeys. *Psychological Science*, vol. 18 no. 11. Retrieved from <http://pss.sagepub.com/content/18/11/978>
- Festinger, Leon. 1957. *A Theory of Cognitive Dissonance*. Stanford University Press.
- Frontline. (January 2003). *A Class Divided*. Retrieved from <http://www.pbs.org/wgbh/frontline/article/introduction-2/>
- Goyette, T. (2011). *White Power: An Analysis of Racial Tensions in "Crash."* Vol. 13, No. 3. Retrieved from <http://ejournals.bc.edu/ojs/index.php/freshink/article/view/1207/1580>
- Gündemir, S., Homan, A. C., de Dreu, C. W., & van Vugt, M. (2014). *Think Leader, Think White? Capturing and Weakening an Implicit Pro-White Leadership Bias*. Retrieved from <http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=79140298-f325-427f-909a-83d699b5d2c0%40sessionmgr115&vid=36&hid=125>
- IMDb. (2004). *Crash*. Retrieved from <http://www.imdb.com/title/tt0375679/>
- Nakamura K, Kawabata H (2013). *I Choose, Therefore I Like: Preference for Faces Induced by Arbitrary Choice*. Retrieved from <http://web.b.ebscohost.com.tjc.idm.oclc.org/ehost/detail/detail?vid=2&sid=a2ae6c4d->
- Project Implicit. (2011). *About the IAT*. Retrieved from <https://implicit.harvard.edu/implicit/iatdetails.html>

Tavris, C., & Aronson, E. (2007). *Mistakes were made (but not by me)*. Orlando, Florida: Harcourt Publishing.

Tucker, K. (2004). *Accidents Will Happen*. Retrieved from <http://nymag.com/nymetro/movies/reviews/11872/>