Odd Occupation: Effects of Counter-Stereotypical Images on Sexist Beliefs

by

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ABSTRACT

The advertising industry plays a crucial role in how ideals and norms are established in United States society. Recent work is revealing the negative impact advertisements can have on self-esteem and self-image, especially for women. Unrealistic body-types, often created through photo editing, continue to contribute to eating and emotional disorders. Such fabricated ideals hinder the progress of social and economic justice for women. This exploratory study investigates whether images of women in traditionally male-dominated roles can weaken sexist attitudes and whether less sexism and highly sexist groups differ in image processing. Participants who scored high or low on the Ambivalent Sexism Inventory were exposed to a set of images of females in the female-dominated occupation of waitress and females in the male-dominated occupation of construction while measuring their neural activity using EEG. Participants complete the Ambivalent Sexism Inventory before and after the experiment. P3 oddball effects are measured for each participant with the hypothesis that the High Sexism group will view female construction workers with a higher oddball effect than the low sexism group. With 38 participants, there is a significant difference between the groups with individuals scoring low on the ASI showing a greater difference between the waitress and construction worker images compared to individuals scoring high on the ASI. Further, exposure to these images did not significantly reduce ASI scores in either group.

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Odd Occupation: The Effects of Counter-Stereotypical Images on Sexist Beliefs

Advertising is currently one of the most popular venues in which individuals are exposed to ideas, cultural values, and gender norms. With the widespread use of advertising on televisions, computers, and mobile devices, it is difficult to go through the day without seeing at least one advertisement. Children alone view nearly 40,000 commercials a year (Bakir & Palan, 2010). With this level of exposure, advertisements play a major role in how we learn about our world and the behaviors expected of us. Advertisements aim to sell products through the creation of ideals and often communicate these ideals with the use of human models and photographs of humans. Some of these ideals, such as a perfect kitchen appliance, seem relatively harmless. Other ideals, however, can manifest harmful and dangerous behaviors in humans such as eating disorders. The goals of this paper are to first provide a brief review of the literature which demonstrates the negative effects advertising has on body image, self-esteem, and the future aspirations of women. Second, to provide background information on EEG techniques, event-related potentials, and their relevance to social issues. Third, to report on the design and results of an exploratory study analyzing how highly sexist and less sexist individuals perceive stereotype-consistent and non-consistent images. The paper concludes with a discussion of these results and implications for further research.

Childhood as Foundation for Gender Roles

Childhood is a critical time when individuals learn what society expects from them, both in terms of their physical appearance and their behavior. Gender roles are taught to children as early as birth, with assignment of pre-determined "boy" and "girl" names as well as "boy" and "girl" colors. The phenomenon of parents opting for gender neutral colors, like yellow, is also an indicator of the conscious and unconscious efforts individuals make to lay the foundation of gender-roles for children. In addition to family members, advertising is a major vessel from which children learn gender roles and the types of behaviors appropriate for their assigned gender. Girls begin internalizing ideals of beauty and physical appearance at a young age and it is possible that by as early as the age of seven females are already relying on advertising culture in making judgments (Martin & Okleshen, 2005). Associating a certain color with a certain gender (i.e., pink is for girls, blue is for boys) can appear arbitrary when it in fact sets the stage for the automatic activation and expression of gender stereotypes which guide the behavior of children, automatically activate associated stereotypes in adulthood, bias impressions of male and female targets and in turn dominate consumer choices of children's goods by gender-stereotyped colors. (Cunningham & Macrae, 2011). The frequent association of specific colors with each gender is an unhelpful obstruction to the reduction of adult gender biases.

Children also take behavior cues from other children of their same sex. In a study of toy advertisements during four consecutive Christmas periods, the percentage of male characters was higher than female characters; the advertising of vehicles and action figures was associated with male characters while dolls and accessories were associated

with females. The values associated with vehicles and action figures were: competition, individualism, ability, physical development, creativity, power and strength, and the values associated with dolls and accessories were beauty and motherhood (Ángel Nicolás, Martínez, & Salas, 2013). A study of advertisements on the Nickelodeon channel conducted by Hein and Kahlenberg (2010) showed similar findings:

> "… in terms of setting, girls-only tended to be shown in the home—whether in bedrooms, kitchens, nurseries, or bathrooms—or in other indoor setting like a dance studio, bowling alley, shopping mall, or a pre-constructed studio space that was innocuous and ill-defined. When shown outdoors, they were located in backyards, gardens and parks, shopping centers, and amusement parks, which served as backdrops for their care-taking, gossiping, and courting. When compared to girls-only, boys-only were shown in a wide range of interactions, including competitive, parallel, independent, and cooperative activities—with cooperative activity most typical" (p. 844).

It is important to note that in the quest for gender equality, research should not de-value female-associated values of beauty and motherhood but rather recognize that our society puts high value on the aforementioned male associated-traits while simultaneously attributing those values unequally across genders by associating them more closely with boys and men. The values advertisements communicate to children, and who communicates them, are facts children internalize early in life. Children as young as four

years old are more likely to choose gender-typed toys when they have seen them on television being used by same-sex models (Ruble, Balaban, & Cooper, 1981). When certain, high-value, traits are communicated to male children (especially by other male-children) but not to female children, a foundation of inequality begins to develop.

Advertising and Adolescents

Body image, self-esteem, and the desire to appear attractive continue to be major concerns and sources of stress for adolescent females across the globe. In many cultures, ideal beauty continues to be linked to unrealistic physical appearances and is often created for advertising through the use of photo editing programs. A 2012 survey of Australian youth revealed that worries about body image were considerably higher among girls, with 43% of girls being "extremely" or "very" concerned about body image compared with 18.6% of boys and that 75% of girls aged 14 to 16 years wanted to weigh less and have a thinner body; including those who were identified as being underweight. This same survey found that 62.8% of young people felt that media and advertising impacted upon their self-perceptions, and 68% of respondents agreed that education on body image and the media would help (Berman & White, 2013). Although this suggests that advertising can negatively and disproportionately affect girls, it is encouraging that these same youth see advertising and the greater media as having a role to play in combating negative body image.

In fact, several studies have shown that the use of more realistic models does not necessarily mean less effective advertising. In a study on average-sized models (Diedrichs & Lee, 2011), women and men rated the average-sized models as equally effective as thin and no models. Additionally, exposure to average-sized models was

associated with a more positive body image state in comparison to viewing thin models for both males and females with high levels of internalization of cultural beauty ideals. Likewise, larger models have been rated as more attractive if participants were primed (i.e. this new magazine features larger-sized models) than when the instructional frame primed traditional beliefs (i.e. this is a traditional women's) magazine (Loken & Peck, 2004). The self-esteem of adolescents can be negatively affected by advertising but adolescents have expressed an interest in media that more realistically portrays human bodies and, research has shown, that more realistic portrayal of human bodies can encourage more positive self-perceptions.

Advertising and Gender Socio-Economic Inequality

Gender roles also contribute to the types of education, careers, and life aspirations individuals pursue. If from a young age, boys and girls are taught to emulate different behaviors, and the behaviors most often taught to boys are valued in the more high-paying and prestigious careers, an economic inequality occurs for girls who follow career paths where the values most often taught to them are more highly valued. The unequal messages advertisements display continue into ads targeted at adult audiences. The sexualization of women is one element of advertising that perpetuates that value of beauty for females and the idea of women as objects for men. Such ideas become more dangerous for women when they reach men with highly sexist views. For example, Borgida and Rudman (1995) found that male subjects exposed to images from advertising depicting women as sexual objects, assessed women as less competent in later test conditions, responded more quickly to sexist words in a word recognition test, and engaged in more sexist behavior with a female interviewer.

In addition to threats of male aggression or harassment, women also face stereotype threat of how their personalities and behavior are portrayed by media. If women are portrayed pervasively in ways that suggest that their principal worth is for men's consumption rather than as agents, women and girls may feel that acting as agents and pursuing careers outside the home goes against the stereotypical family-center roles prescribed to them. Such perceptions can become part of a self-fulfilling prophecy that hampers performance as women struggle to achieve without going completely beyond stereotypical roles (Piety, 2009). Even when men are the focus of advertisements, the ways in which women are portrayed as secondary demonstrated their lack of value or agency. In a study of South African television ads, Luyt (2011) found that males were represented as dominant, were of primary focus; appeared most frequently within the socially valued public-work arena; and were represented in positions of greater social authority while females were represented as subordinate, of secondary focus; appeared most frequently within the socially undervalued private-domestic arena; and were most often represented in positions of social subordination.

If advertisements limit the circumstances in which they include women, it sends a message that women can only occupy these limited spaces while men are free to occupy all spaces. When the spaces women occupy are less valued, less prestigious, and pay less than the spaces occupied by men, socio-economic inequality continues to flourish. Brown, Geis, Jennings, & Porter (1984) found that women viewing non-traditional advertisements (i.e. women in the workforce) reported more diverse and progressive achievement scripts than women viewing traditional advertising scripts (i.e. women in the home). A later study attempted to replicate these findings but found no difference in

achievement scripts for women across conditions nor between women and men (Christopher & Yoder, 2008). It is quite possible that social conditions have changed and more women occupy a wider variety of social positions than they had at the time of the initial study in 1984. As with adolescents viewing media as a venue for change in topics of body image, advertising can also be a venue for change in topics of gender and career, education, and achievement possibilities.

One main issue for advertisers is effectiveness. Current evidence both supports the notion of counter-stereotypical advertising and points to some of the issues. Some evidence supports the effectiveness of traditional gender roles in advertising over advertising that breaks gender roles due to the warmth associated with traditional roles (Cinnirella & Zawisza, 2010). Likewise, communal (a trait traditionally associate with females) female advertising characters have been evaluated more favorably than agentic ones and these evaluations have predicted advertising effectiveness (Bosak, Infanger, & Sczesny, 2012). However, campaigns produced by companies such as Dove, that recognize the stereotypes women face and seek to counter them have been effective in regards to consumer perception and product sales (Piety, 2009). The inconclusiveness of existing research leaves the question of effectiveness without a definite answer and open to further inquiry.

Sexism, Objectification, and Categorization

The main focus of this study analyzes how individuals process traditional gender role images and non-traditional gender role images in connection with their own level of belief in gender roles. Research has shown that hostile sexism in men predicts more negative responses to females in violation of traditional female gender roles (Gaunt,

2013). Additionally, hyper-masculine men who conform to traditional male roles have shown higher levels of aggression toward females who violate traditional female gender roles (Reidy et al., 2009). This model of recognition suggests that individuals with high levels of hostile sexism and belief in traditional gender roles would be sensitive to recognizing violations of these roles, especially by females.

Another aspect of categorization is interchangeability, or the idea that individuals in a group can be viewed as more similar than as separate individuals. A 2012 study found that people with similar body types were more interchangeable than people with differing body types. Additionally, women of all body types, and men of attractive body types, were more interchangeable than men of average body types (Gervais, Vescio, and Allen, 2012). These findings suggest that participants had difficulty recognizing similar individuals within a group and that this difficulty carried across all image groups of women. This phenomenon may affect the results of this study as all the images in this study are images of women with similar body types.

Individuals recognize images of their same sex more efficiently than faces of the opposite sex, with females recognizing male faces more efficiently than males recognizing female faces (Cellerino, Borghetti, and Sartucci, 2004). Taking this into account, it could then follow that the low sexism group would demonstrate a larger P3 effect as the low sexism group had twice as many females as males. Likewise the high sexism group had nearly triple the number of males as females.

Quantitatively Measuring a Social Issue

The above literature review presents a brief background of image recognition research and represents a solid history of the relationship between what humans see and how they feel. Much of this work is based in qualitative methods of interviews, collages, and observation. This study reimagines these issues through a quantitative perspective and demonstrates the value quantitative methods bring to the broader discussion. Quantitative measures, such as EEG, bring tools to the table that are not available in qualitative work. EEG allows for time-locking reactions to the presentation of stimuli which can help pinpoint exactly when individuals are reacting to images and to what degree they are reacting. This also allows for the isolation and comparison of variables to better understand what aspects of an individual are more strongly tied to their reactions, such as gender and ASI pre-score. With these tools, quantitative methods like EEG are a perfect fit to investigate the inner working of sociological phenomenon such as image recognition.

Experimental Hypotheses

Using modern neuroimaging techniques, this exploratory study focuses on the effectiveness of counter-stereotypical images as a tool for weakening sexist attitudes in individuals and whether less sexist and highly sexist individuals differ in image processing. As discussed above, much of the current literature focuses on images as an antagonist for lower self-esteem and body image issues. However, there has been little empirical research on using images containing counter-stereotypical information to combat an individual's belief in a given stereotype. In this study, images of women in the

male-dominated occupation of construction worker serve as examples of counter-stereotype information in hopes that exposure will weaken sexist beliefs. Taking into account the discussed theories of discrimination in categorization, it was hypothesized that the low sexism group would demonstrate a higher P3 difference than the high sexism group.

Event-Related Potentials and P3

To better explain why neurological measurement techniques such as electroencephalogram are helpful in understanding social phenomenon like prejudice and stereotyping, it is necessary to provide a brief background of ERPs and the P3 component. Electroencephalogram, or EEG, measures electrical activity in the brain through the placement of electrodes on the scalp. The American Clinical Neurophysiology Society encourages recording simultaneously from as many sites as possible but recommends a minimum of sixteen electrodes for clinical study (2008). A common-use EEG cap contains thirty-two electrodes positioned to mirror the different regions of the brain such as the occipital, frontal, parietal, and temporal lobes.

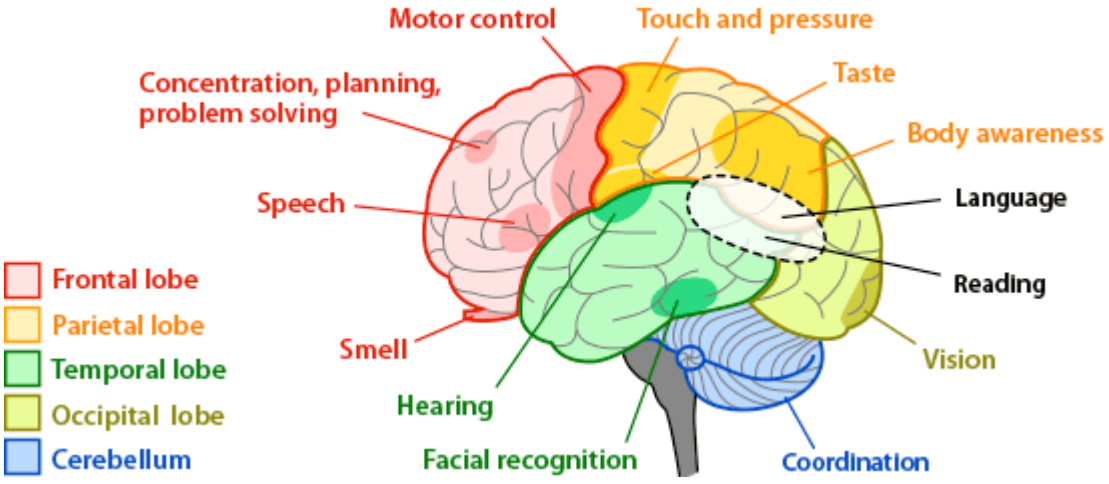

Image 1: Areas of the Brain and Related Functions (askabiologist.asu.edu, accessed 2/27/2015)

This image details the various regions of the brain and the functions associated with them. Raw EEG data represents dozens of different sources of activity which makes it difficult to isolate individual neuro-cognitive processes. Embedded within the EEG are neural responses associated with specific sensory, cognitive, and motor events which can be extracted using wave averaging techniques. These events are called event-related potentials, or ERPs, as they are electrical potentials related to specific events (Luck, 2014). EEG waveforms are a time by voltage function wherein time-locked deflections in the waveform are referred to as components. Component amplitude reflects the extent to which the associated psychological operation has been engaged and the latency of the component's peak reflects the point in time by which the operation has been completed (Ito, 2011).

Event-related potentials provide a full time-range of measurement in a moment-by-moment fashion unavailable in other methods. By using EEG methods to measure ERPs, researchers are able to see a full picture of an event, from before the stimulus, during the stimulus, and afterward. This provides opportunities to review brain activity at any point in a study and compare that activity across any other point. Therefore, waveforms and peaks can be isolated and connected to corresponding psychological operations and stimuli. The P300, for example, is used in this study due to its relationship with predictability and uniqueness.

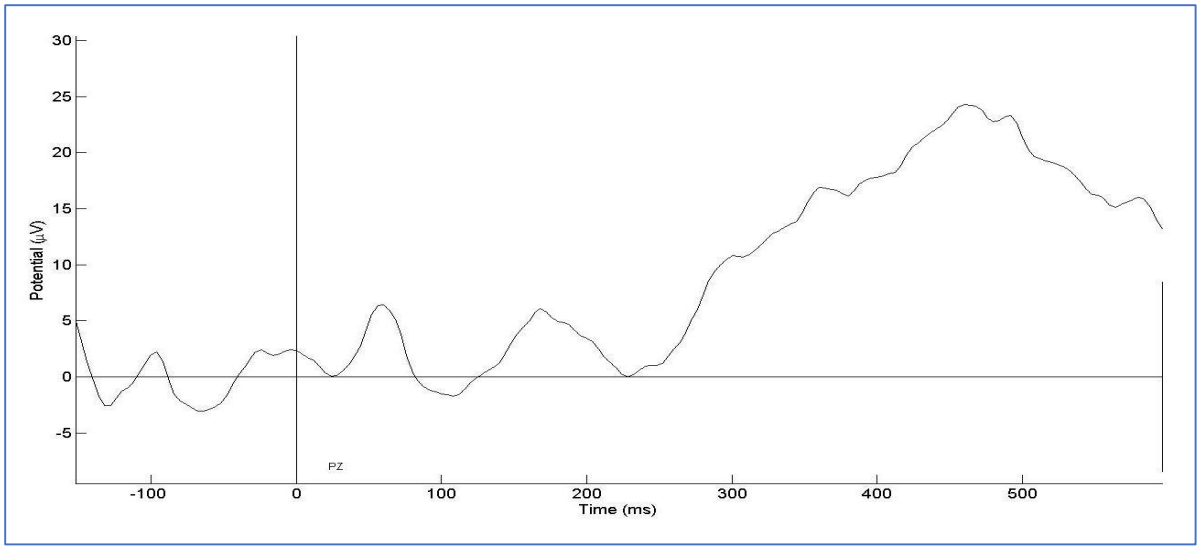

Image 2: Example of P3 Peak on PZ Electrode (peak occurs between 300 and 500 ms)

The P300 (or P3) was discovered in 1965 by Sutton, Braren, Zubin, and John when the conducted an experiment in which it was impossible for participants to predict whether the next stimulus would be auditory or visual. The researchers noted a large positive peak around 300 ms post-stimulus which was much smaller when compared with a condition in which participants could predict the type of stimulus.

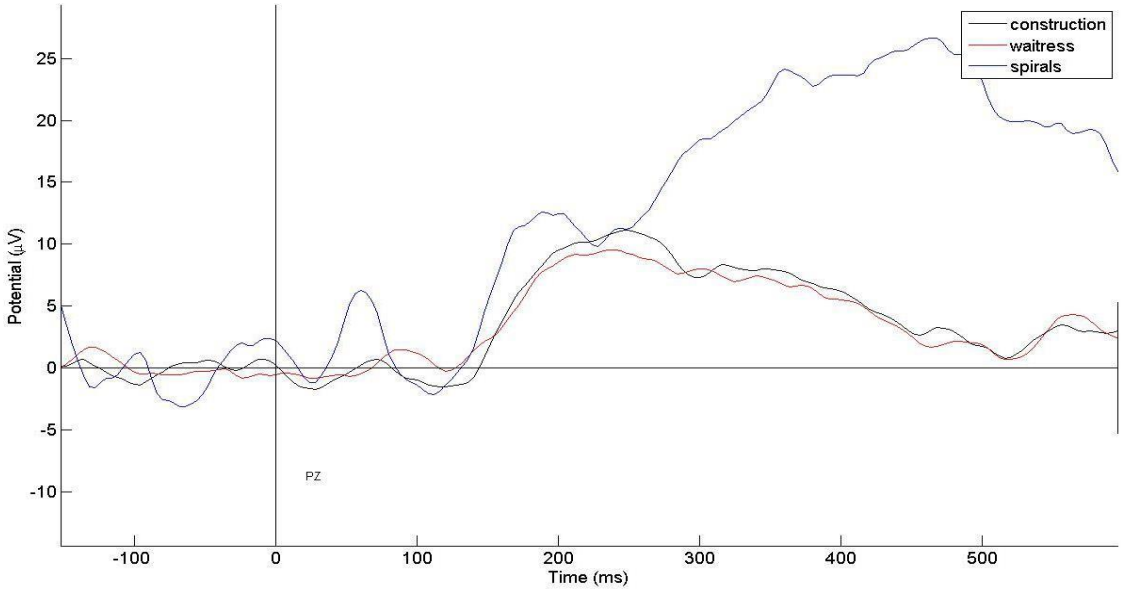

Image 3: Total ERPs Across Three Conditions

Thousands of studies have branched from this work into what is called the "oddball" paradigm, or the ability of participants to judge a stimulus as something they expect or do not expect (Polich, 2007). In this study, the images of women in male-dominated jobs serve as "oddball" stimuli in that they are theoretically not what participants would expect to see as females are statistically largely outnumbered by males in that profession. Likewise, the images of waitresses serve as the stimulus participants theoretically expect to see as women statistically largely outnumber men in the waitress/waiter profession (Institute for Women's Policy Research, 2013).

The Ambivalent Sexism Inventory

In addition to EEG measurement of ERPs, this study also utilized a questionnaire-style survey entitled the Ambivalent Sexism Inventory (see Appendix A). Created in 1996 by Peter Glick and Susan Fiske, the Ambivalent Sexism Inventory (ASI) contains two correlated measures of sexism: Hostile and Benevolent. Both Hostile sexism and

Benevolent sexism are hypothesized to encompass three sources of male ambivalence toward women: Paternalism, Gender Differentiation, and Heterosexuality (Glick & Fiske, 1996). These ideas can also be just as pervasive in females as they remain highly present in US society. In general, Hostile sexism refers to beliefs such as "women do not appreciate all that men do for them" while Benevolent sexism is associated with beliefs such as "every man should have a woman he adores". In these examples, ascribing a lack of appreciation for men in the minds of women can be understood as more hostile and anti-women than the belief that every man should have a woman to adore. Even though the Benevolent example is not directly sexist or aggressive, it contains the underlying assumption that every man should adore women (assuming heteronormativity) and also assumes women are "own-able".

The Ambivalent Sexism Inventory contains twenty-two statements regarding gender-relations and attitudes about women. Answers to each statement vary on a Likert scale of 0-5, where 0 = disagree strongly, 1 = disagree somewhat, 2 = disagree slightly, 3 = agree slightly, 4 = agree somewhat, and 5 = agree strongly. Scoring can be done in three ways. A general averaging of responses produces an overall ASI score. An averaging of Hostile statements produces a Hostile sexism score while averaging of Benevolent statements produces a Benevolent sexism score. For the sake of this study, participants were scored using Hostile sexism scores as the hostile statements are more closely related to negative beliefs about women and belief in negative stereotypes about women (Glick & Fiske, 1996).

Design and Methods

Approximately 1,600 students across two semesters completed the ASI as part of their psychology course requirements. The Hostile sexism subscale score was calculated and was the measure used for recruitment of participants based on the reasoning that hostile measures relate more closely to outward, aggressive sexism (see discussion above). Students who failed to complete every statement were disqualified from recruitment which left a total of 1,524 students. Based on this, students scoring in the top and bottom 20% of the Hostile scores were recruited for participation, creating a High Sexism group and a Low Sexism group.

	Total Participants	**Females**	**Males**	**Average Age**	**Average ASI Score**
High Sexism Group	19	5	14	18	3.9
Low Sexism Group	21	14	7	20	.52

Table 1: Descriptive Statistics of Participants

The average age across all participants was 19.5 years (19 for females and 19 for males). The average hostile score across all students who completed the inventory was 2.3. In the top 20% of all scores, the highest score was 4.8 and the lowest score was three. In the lowest 20% of all scores, the highest score was 1.7 and the lowest score was zero.

Among participants, the highest score was 4.4 and the lowest score was zero. Two participants were discarded due to excessive artifacts leaving a total of 38 participants.

Procedure

Upon entering the lab, participants were greeted by a researcher and asked to sign a consent form. They were then escorted to room and the preparation procedure for the EEG cap was explained and the cap was applied. They were then escorted to thee experiment room where they sat at a desk with a 27" 2560x1440 monitor and a response pad (PSTNet SRBox). Subjects were shown their EEG readings and asked to blink, move their eyes, and clench their jaw to demonstrate the large impact it had on the signal.

Participants were told that they would view a series of photos that would flash on the screen and disappear quickly. Participants were also told that the experiment had 8 blocks, each lasting 1 minute and 30 seconds, and to remain as still as possible during each block and move freely during prescribed break times. Participants were given 30 second breaks between each block and a one minute break between the 4th and 5th block Their task was to press the left button on the SRBOX as they saw a counterclockwise spiral and the right button each time they saw a clockwise spiral. They were not told what type of images they would see. In each block, there were 10 images of female construction workers, 10 images of female waitresses and 4 images of spirals. Each of female waitress and construction worker images appeared on the screen 6 times for 400ms and each spiral image appeared on the screen 4 times for 400ms. Between each image, a white fixation cross appeared on the screen for 800-1400ms. All images were randomized.

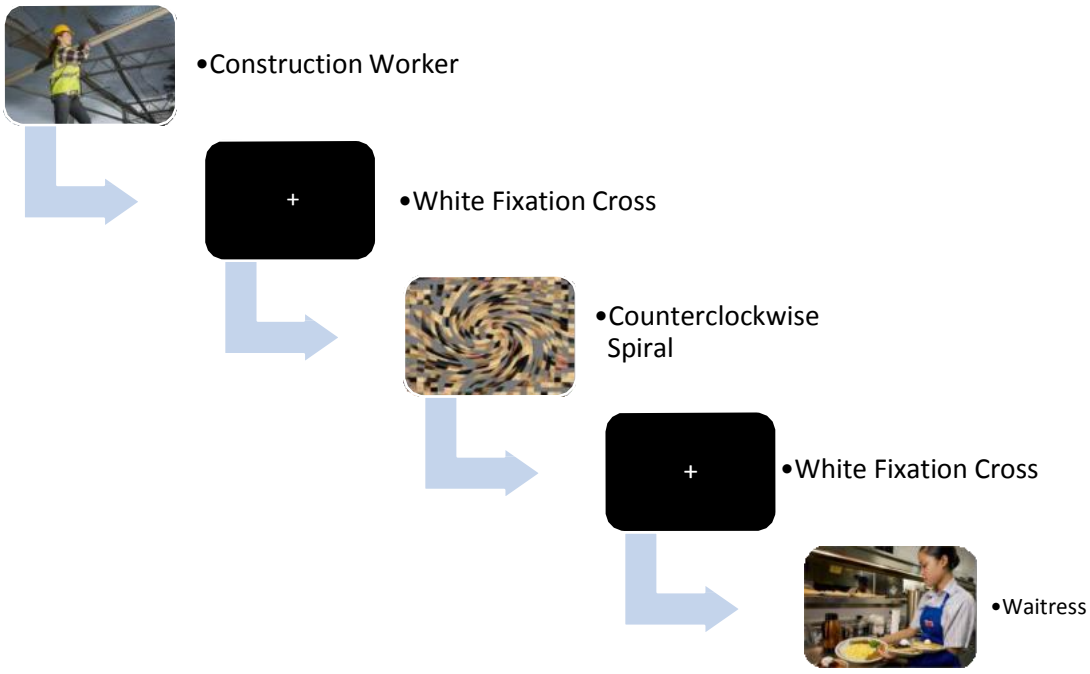

Image 4: Flowchart of Randomized Trials

After completing this task for 8 blocks, participants completed the ASI by responding to the Inventory's statements using the computer keyboard. Once they completed the scale, participants were thanked for their time, had their EEG caps and electrodes removed, and were awarded credit as part of their Psychology course research participation requirements. The total experiment run time, with preparations, was approximately 35 minutes.

EEG recording parameters.

The EEG was recorded using a 32-channel cap with the average of the left and right mastoid electrodes as a reference on a NeuroScan SynampsRT system at 1000Hz band-pass filtered from .1Hz to 100Hz. The data were resampled offline to 250Hz and band-pass filtered from 0.2 to 30Hz. Data were time-locked to the onset of the face and epoched from -150 to 600 ms and baseline corrected to the first 200 ms. Finally, trials

which had a ±50 μV deviation across a 60 ms wide window moving in increments of 20 ms in any channel were considered artifacts and removed from analysis.

Results and analysis.

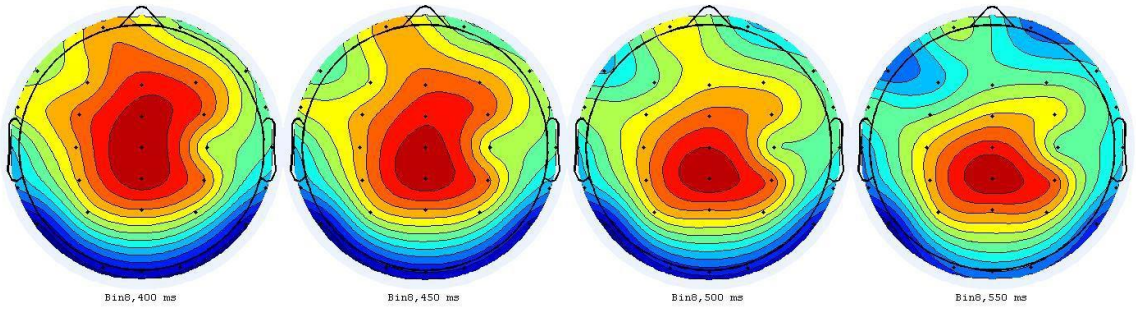

Image 5: Scalp map of ERP averages from 400ms-596ms

As shown in Figure 5, the P3 amplitude was maximal over parietal electrodes. Activity across the six parietal electrodes (P3, PZ, P4; CP3, CPZ, CP4) was averaged. Next, blind to whether the subject was high or low on ASI, the time of P3 peak amplitude (spirals minus average of waitress and construction images) was measured for each individual (between 300 to 500 ms). Finally, for each of the waitress and construction worker conditions, an average P3 response was computed across a 60 ms window centered on the time derived above. All EEG correlations are based on the difference between these conditions.

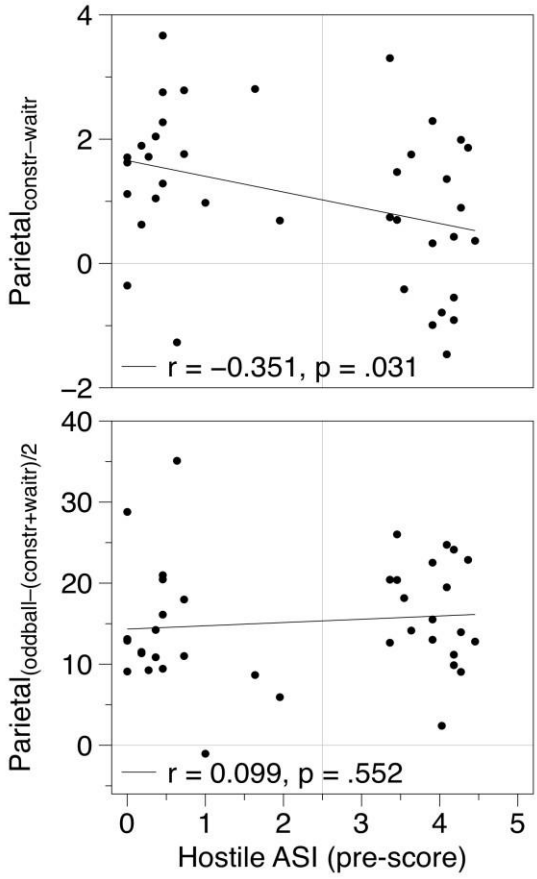

Figure 1: Top figure shows the negative correlation between the ASI pre-score and the P3 ERP component over parietal sites for images of construction – waitresses (r= -.351, p= .031). Bottom figure shows that there is no relationship between the ASI pre-score and overall oddball effect (r=0.099, p= .552).

A correlation of ASI pre-score and the P3 ERP component over parietal sites shows a significant negative correlation between low sexism individuals and high sexism individuals in recognizing the difference between the female construction worker and waitress images. Individuals with low sexism scores showed larger P3 effects than individuals with high sexism scores. There was no correlation between ASI pre-score and overall oddball effect. When controlling for gender in a partial correlation, the relationship between ASI pre-score and P3 effect is eliminated (r=-.222, p = .18).

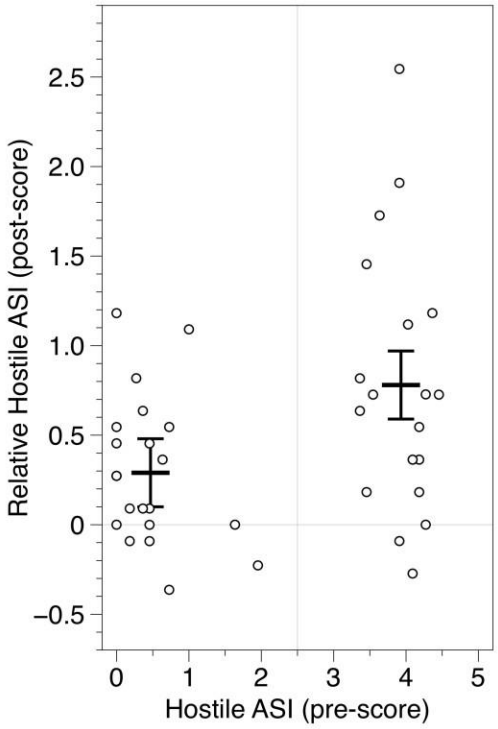

Figure 2: The change in ASI from pre- to post-test controlling for regression to the mean. For individuals with a low ASI score at pre-test, the values on the y-axis represent post–pre ASI score with the converse being true for high ASI scores.

By controlling for regression to the mean, the above figure shows the selection of individuals for group membership according to their pre-score measure did not bias the data.

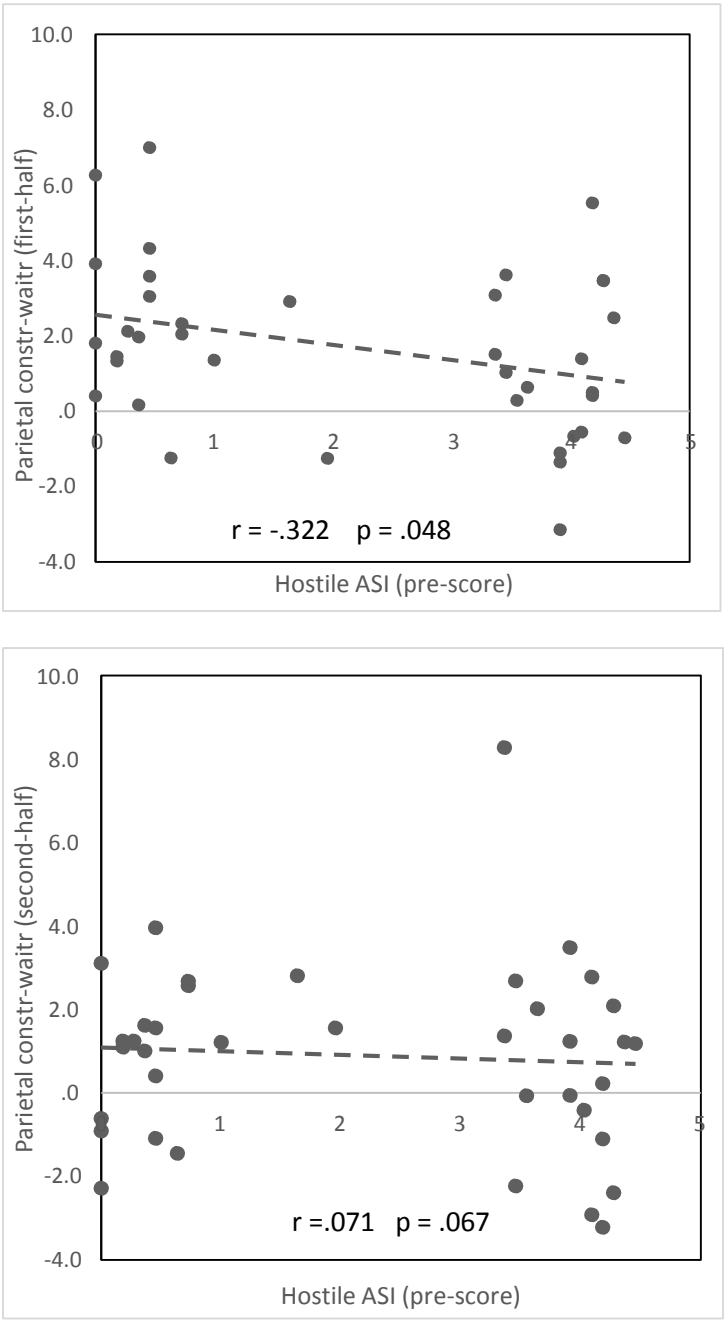

Figure 3: Top figure shows a significant negative correlation between the ASI pre-score and the P3 ERP component over parietal sites for images of construction – waitresses during the first half of trials (r=-.322, p =.048). Bottom figure shows a diminishing of the effect during the last half of trials

Correlational analysis for the first half of trials shows a significant negative correlation between ASI pre-score and parietal P3 component between construction worker and waitress images. Individuals with low ASI scores show a larger P3 component between

the images. The bottom figure shows a diminishing effect of these differences in the second half of trials.

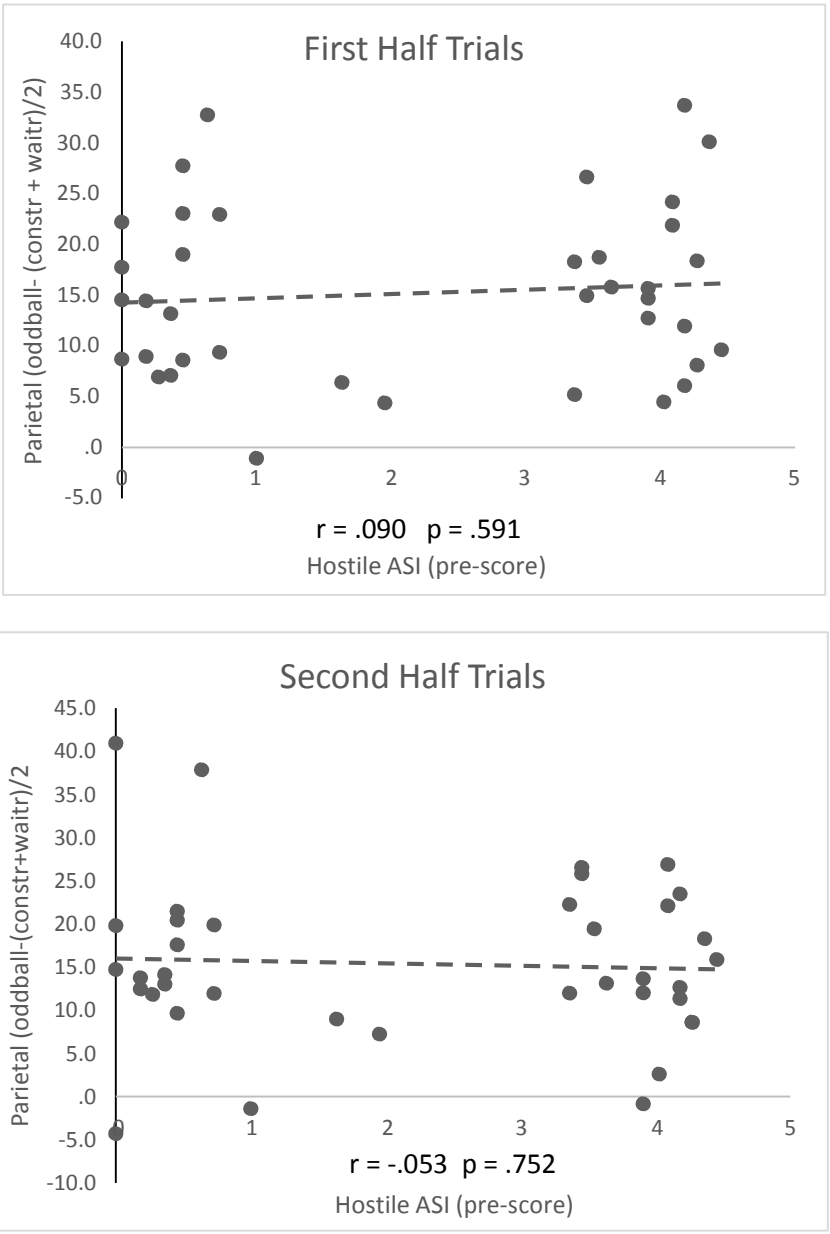

Figure 4 Top figure shows no significant correlation in overall oddball effect and ASI (pre-score) for first half of trials. Bottom figure shows no significant correlation in overall oddball effect and ASI (pre-score) for second half of trials

These figures show no significant correlation in overall oddball effect and ASI pre-score in either the first half of trials or the second half of trials. There was no significant

increase or reduction of the overall oddball effect between the first and second half of trials.

Discussion

This study has yielded encouraging findings in support of more non-traditional gender roles in advertising, especially for women. These results demonstrate that individuals with low sexist attitudes are recognizing the images of female construction workers as different from female waitresses. This can be understood as a positive phenomenon and may suggest a connection between beliefs like feminism, equal gender roles and recognition of women as individuals. Likewise, results show a smaller P3 difference in the high sexism group which can suggest that the highly sexist individuals did not demonstrate a backlash against viewing stereotype-inconsistent images and perhaps had more trouble recognizing the differences between the images.

When comparing these effects between the first half and second half of trials, there is an initial significant negative correlation between ASI pre-score and image types that diminished within the second half of trials. This may suggest that low sexism individuals show an initial ability to recognize and categories females as individuals in differing occupations but that the ability fades over time to a more generalized, all-female, categorization approach that is less sensitive to differences. As many members of the low sexism groups were female and many members of the high sexism group were male, results also follow research showing females are better at recognizing same-sex faces and faces overall than males. When controlling for gender, the significant negative correlation between ASI pre-score and P3 is eliminated. However, this effect is still significant is worth further exploration. Since there was no significant correlation

between ASI pre-score and overall oddball effect between the first half and second half of trials, the overall oddball effect did not significantly change across all eight blocks.

These findings suggest that less sexist individuals may be more sensitive to differences between females and recognizing females as individuals. This study does support exposing highly sexist individuals to counter-stereotypical images as an effective method to weaken sexist beliefs. Although both the low sexism group and the high sexism group showed reductions in their ASI score, the highly sexism group showed larger differences in scores.

One confound of this study is that all participants were run by a female researcher. The presence of a female researcher may have motivated participants to answer the post-score measure in ways they perceived would not offend, and perhaps even gain the approval of, the female researcher.

Conclusion

This exploratory study demonstrates a connection between what individuals see in images and what their beliefs are about topics related to the images. Much research has shown a negative version of this connection wherein individuals adopt negative perceptions of themselves and others after being exposed to unrealistic body ideals. The goal of this study was to explore ways in which more positive ideas can be introduced through images and whether or not exposure to more positive ideas can affect an individual's existing beliefs. These results are promising and serve as grounds to further explore this connection and its real-world applications. As women both choose, and are economically unable, to stay in the home and perform traditional gender roles, it makes sense that advertising should adapt to the reality of the world. Our findings support

adapting image-exposure as a possible positive approach for advertisers to effectively reach individuals who hold low sexist attitudes. Such adaptation may serve both as a venue for encouraging women to pursue non-traditional life goals, to reflect the reality of women in a variety of occupations, and also for advertisers to better reach a modern female audience that does not identify with traditional gender roles. It is clear that advertising can play a very harmful and negative role at every stage of life. However, it is also clear that consumers are interested in media that more realistically portrays their experiences and values. This opens the door for more realistic advertising as well as for the use of images that counteract traditional gender roles.

Although religion and cultural traditions were not taken into account in this study, participants who practice religions that support females in secondary roles or come from cultures outside the U.S, may not share the same baseline awareness assumed of college-age, U.S students. These findings should be replicated in a larger sample with a variety of researchers to help control for bias. It can also be of value to test this model against other forms of prejudice such as racism, homophobia, and transphobia.

Further research is needed to test this technique with racist beliefs, homophobia, and transphobia in order to relate the idea of changing images to better match reality and the effectiveness of images in changing beliefs. If the effects shown here can be replicated, such findings could lead to more pressure for advertising agencies to show individuals as they really are (without photo editing) as well as a push for children's marketing to be more gender neutral. By re-building gender roles from the ground up, we can set the foundation for a more equal society in which worth, skills, and personality traits are not dictated and passed down according to an individual's assigned sex at birth.

Further work is needed to expand and strengthen the real world applications of changing imagery to match reality and ideals more in line with equality across race, gender, sexual orientation, and social class. This relationship between what we see, what we believe, and how we act promises to be a powerful tool in the fight for economic and social justice.

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APPENDIX A

AMBIVALENT SEXISM INVENTORY

The Ambivalent Sexism Inventory (ASI)

Relationships Between Men and Women

Below is a series of statements concerning men and women and their relationships in contemporary society. Please indicate the degree to which you agree or disagree with each statement using the following scale: 0 = disagree strongly; 1 = disagree somewhat; 2 = disagree slightly; 3 = agree slightly; 4 = agree somewhat; 5 = agree strongly.

B(I) 1. No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman.

H 2. Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality."

B(P)* 3. In a disaster, women ought not necessarily to be rescued before men.

H 4. Most women interpret innocent remarks or acts as being sexist.

H 5. Women are too easily offended.

B(I)* 6. People are often truly happy in life without being romantically involved with a member of the other sex.

H* 7. Feminists are not seeking for women to have more power than men.

B(G) 8. Many women have a quality of purity that few men possess.

B(P) 9. Women should be cherished and protected by men.

H 10. Most women fail to appreciate fully all that men do for them.

H 11. Women seek to gain power by getting control over men.

B(I) 12. Every man ought to have a woman whom he adores.

B(I)* 13. Men are complete without women.

H 14. Women exaggerate problems they have at work.

H 15. Once a woman gets a man to commit to her, she usually tries to put him on a tight leash.

H 16. When women lose to men in a fair competition, they typically complain about being discriminated against.

B(P) 17. A good woman should be set on a pedestal by her man.

H* 18. There are actually very few women who get a kick out of teasing men by seeming sexually available and then refusing male advances.

B(G) 19. Women, compared to men, tend to have a superior moral sensibility.

B(P) 20. Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives.

H* 21. Feminists are making entirely reasonable demands of men.

B(G) 22. Women, as compared to men, tend to have a more refined sense of culture and good taste.

Scoring Instructions

The ASI may be used as an overall measure of sexism, with hostile and benevolent components equally weighted, by simply averaging the score for all items after reversing the items listed below. The two ASI subscales (Hostile Sexism and Benevolent Sexism) may also be calculated separately. For correlational research, purer measures of HS and BS can be obtained by using partial correlations (so that the effects of the correlation between the scales is removed).

Reverse the following items (0 = 5, 1 = 4, 2 = 3, 3 = 2, 4 = 1, 5 = 0): 3, 6, 7, 13, 18, 21.

Hostile Sexism Score = average of the following items: 2, 4, 5, 7, 10, 11, 14, 15, 16, 18, 21.

Benevolent Sexism Score = average of the following items: 1, 3, 6, 8, 9, 12, 13, 17, 19, 20, 22.

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