MASCOTS OF FEAR

By

CSONGOR DANIEL HORNYIK

Bachelor of Arts in Psychology

University of Kentucky

Lexington, KY

2004

Master of Science in Social Psychology

Vrije Universiteit

Amsterdam, The Netherlands

2007

Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
MASTER OF SCIENCE
December, 2010

MASCOTS OF FEAR

Thesis Approved:

Dr. Charles I. Abramson

Thesis Adviser

Dr. Jared P. Dempsey

Dr. John M. Chaney

Dr. James W. Grice

Dr. Mark E. Payton

Dean of the Graduate College

ACKNOWLEDGMENTS

Furthermost, I would like to express how grateful I am to Dr Charles Abramson that he took me under his arm and together with Dr John Chaney immediately provided me a project and instant guidance at the time when it seemed that my scientific career ended or at least was seriously sidetracked. I am forever grateful to both of them. I would also like to express my sincere appreciation to Dr Jared Dempsey without whom this project could not have been realized. Not only that he provided me a place to run my study and a second home in form of the CNS Lab, but he also taught me the ropes of doing psychophysiological research what I will continue to do in the future. I would also like to thank Bill Lechner, David Lovett, Stephanie Klein and the other members of the CNS Lab for their assistance with various parts of this project. Finally, but not least, I would like to express how grateful I am to my parents for all their love and support throughout these years.

TABLE OF CONTENTS

Chapter Page

CHAPTER I

MASCOTS OF FEAR

Numerous Native American organizations asked for the discontinuation of the use of Native images and symbols in high school and college athletics. Their argument is that Native mascots caricaturize American Indians, and as such they contribute to the lower self-esteem, as well as lower academic achievement of Native students in the respective institutions. Although numerous educational institutions changed their Native mascots to non-Native ones, more than one-thousand high schools and close to hundred colleges/universities still oppose the change. Their argument is that these mascots do not intend to offend but instead they honor Native people and promote intercultural understanding by portraying American Indians in a positive way, depicting them as brave, skillful and strong warriors. The main counterargument of Native groups is that the sheer idea of "honoring" Native Americans raises them to an allegorical position (Robidoux, 2006, Chaney, 2008).

Changing a well-established mascot is undoubtedly a costly and risky marketing-business. Nevertheless, a long line of research suggests that even perceived discrimination can be an environmental stressor, so in long run it might have adverse effects on members of the stigmatized group (Clark, Anderson, Clark & Williams, 1999). Second, keeping a mascot in face of appearing racist might seriously harm a team's or an institution's reputation. Consequently, the mascot issue does not only concern Native-Americans, but it is a global marketing/management issue regarding how a school or a sport team wants to portray itself (Wolburg, 2006).

So far, neither the opponents nor the supporters of the mascot-change have sufficient evidence to back up their arguments. The primary goal of the current study was to examine whether Native mascots are indeed perceived as more aversive than the Caucasian mascots are. Second, it also attempted to shed more light on the question what drives this effect. To investigate this, a psycho-physiological measure, the affective modulation of the startle response (AMSR) was used, along with a reaction-time measure (a modified version of the weapon-bias task).

Humans respond with a startle response of their entire body (including eye-blink) to sudden stimuli of any sensory modality. The AMSR is a measure of affect that relies on the principle that this startle response is larger when people experience negative affect, such as threat, and it is smaller when they experience positive affect, such as interest (Bradley & Lang, 2007).

Based on this principle it was hypothesized that if Native mascots are truly perceived negatively, the AMSR results will reveal that participants display larger startle responses

to Native mascots compared to the Caucasian mascots. Furthermore, it was also hypothesized that participants will react similarly to Native mascots as they do for well established negative pictorial stimuli and with larger startle response compared to established positive pictorial stimuli. It was also hypothesized that the driving-force behind this phenomenon is intergroup anxiety/fear (as captured by the modified version of the weapon bias task).

The following chapters will provide a brief overview of the small, but slowly growing amount of evidence regarding the nature of these images. Along with the actual findings, a detailed overview and criticism of the methodological strengths and weaknesses of the measurement techniques these studies used will be provided. Finally, this current paper will argue for the superiority of the alternative, physiological method used and a comprehensive overview of the current study will be provided at the end.

.

CHAPTER II

REVIEW OF LITERATURE

The mascot debate: A brief overview

Fryberg (2003) was among the first to find initial evidence that when exposed to stereotypical Native images (e.g. Pocahontas or Chief Wahoo), Native American students score lower on scales of self-esteem and future achievement-orientation. Conversely, when exposed to the same images, Caucasian students score higher on both scales. It appears that Native mascots might not only be degrading to Native Americans, but they also result in feelings of superiority among Caucasians. This could be one explanation why some supporters are opposing the idea of mascot change that fervently.

The primary source the opponents of the mascot-change usually cite is a large-scale survey conducted by Harris (2002) for the journal *Sports Illustrated*. Harris reported that the majority of the 351 Natives as well as the 743 Non-Natives he surveyed favored the Native mascots and did not express a wish to discontinue them. At the same time, the journal *Indian Country Today* reported that the majority of Native Americans whom they surveyed, favored the change of Native mascots and only the majority of Non-Native Americans supported the idea to keep the mascots (Chaney, 2008). The main problem with these and similar self-report measures is that people are reluctant to express their biased attitudes towards others.

Implicit vs explicit measures of attitudes

Attitudes are "mental and *neural* states of readiness, organized through experience, exerting a directive or dynamic influence upon an individual's response to all objects and situations with which they are related" (Allport, 1935, p. 810). This early definition of attitudes captures the essence of how scholars think about this central concept of psychology and everyday life. More importantly, it aptly summarizes the basic theoretical idea, as well as the research methodology behind the current paper.

An important feature of attitudes is that they are hypothetical constructs and cannot be observed directly, so we infer them based on peoples' responses (Schwartz, 2008). Attitudes are also commonly described as operating at two different levels of awareness: one deliberate and conscious, while the other automatic and "unconscious" (Devos, 2008).

Traditionally, researchers tapped only the conscious component, asking people how they felt about certain objects. Because of their overt nature, these measures are commonly referred to as "explicit" measures of attitudes. The biggest problem with these questionnaire-type measures is that they assume that people are consciously aware of their likes and dislikes and that they report them as they are. Schwartz (2008) describes three possible reasons why this might not always be the case. First, people might indeed have attitudes that are not consciously accessible for them at all. Second, people do not like to publicly reveal their inner feelings about others, especially if these feelings are not favorable. Finally, most people (like to) think about themselves as open-minded and egalitarian individuals; consequently, not acknowledging their biases against others makes people feel more comfortable.

Dovidio (1997) was one of the first who reasoned that instead of asking for consciously formulated answers, a better way to measure inter-group-attitudes is by tapping into "unconscious" reactions. In the past decade several measures were developed for this purpose. These measures are commonly referred to as "implicit" measures, because they do not ask for an explicit attitude report, and because they can be detected even without participants' explicit awareness (Schwarz, 2008). These implicit attitudes are commonly thought of as automatic processes (Devos, 2008), what means that they fall outside of conscious awareness; furthermore, they do not require control, intention and attention (Bargh, 1994).

Reaction-time measures of attitudes

Most "implicit" measures are based on some type of a reaction time of the participants and they look either at facilitation effects or inhibition effects on the target of interest (Devos, 2008). Past research commonly used two types of implicit measures: sequential priming procedures as well as response competition procedures.

The basic underlying idea of *response competition procedures* is that exposing participants to a stimulus that contains features implying different responses (e.g. both positive and negative features) will slow down the response. The most well known measure of this type is the "implicit association test" (IAT) that measures the speed people associate certain neutral stimuli (e.g. racial, ethnic or age-groups) with evaluative words (e.g. good or bad). Research on Native Mascots, so far has primarily relied on this research paradigm.

The basic underlying idea of *sequential priming procedures* is that exposing participants to a certain stimulus will facilitate or inhibit their responses to subsequent related stimuli. The effect was found both in case of conceptually related stimuli ("concept priming") as well as affectively related stimuli ("evaluative priming"). The Weapon Bias Task (Payne, 2001), one of the measures used in the current paper, is a good example of measures of this type. In the original version of this task participants have to differentiate between weapons and tools (harmless objects). These objects are preceded by a face of either an African-American person or a Caucasian person flashed for a very short period of time. A consistent finding is that if participants can respond in their own pace, they react faster to guns in case of black faces compared to white faces. Furthermore, if participants are

forced to make snap judgments (respond within half-second), they more often misidentify a tool for a gun in case of black faces compared to white faces (Payne, 2006). Currently, it is unclear, what exactly is driving this effect. Is it the stereotypic association of African-Americans to aggression and danger or is this task simply tapping on a fear response driven by out-group-bias/anxiety?

Reaction-time implicit measures and Native mascots

Freng (2001) was the first to find initial evidence that certain Native mascots are indeed evaluated negatively. Specifically, he used a sequential priming procedure, *subliminally* exposing participants to a Native mascot (Chief Wahoo) or a Non-Native mascot (Yankees or Pirates). After this task, he presented participants letter-strings that were either meaningful (words) or meaningless. The words belonged to four distinct categories: positive Native-stereotypes, negative Native-stereotypes, baseball related words and control-words. The dependent variable was the speed participants categorized the presented letter strings as words or non-words. The striking finding was that participants responded faster to words classified as negative Native stereotypes than to words of the other three categories.

This was the first empirical finding against the argument that Native mascots honor Native Americans. If this would be the case, participants should have identified the words classified as positive Native stereotypes faster than they identified the negative Native-stereotypes. Nevertheless, this study does have some limitations. It is unclear whether the mascot activated only negative Native stereotypes (conceptual priming) or for some

unknown reason it evoked negative feelings and activated negative words in general (affective priming).

Prejudice can be defined as a negative evaluation or attitude (Bodenhausen & Richeson, 2010). In case of inter-group literature this negative out-group evaluative bias is often linked to and sometimes confused with stereotypes. While prejudice is a global evaluative reaction to others, a stereotype is simply a catalog of specific descriptions of characteristics of a certain group; these descriptive traits are often linked by causal, albeit not evaluative theories (Bodenhausen & Richeson, 2010). Recent theorizing (largely driven by modern neuro-scientific evidence) found clear evidence that these two concepts are independent from each other, linked to different brain regions, as well as they lead to different types of discriminatory responses.

Consequently, without including words of negative valence that are unrelated to Native stereotypes, one cannot be sure where the effect actually lies. Additionally, Chief Wahoo, the grinning, red-faced mascot of Cleveland Indians, is one of the most caricaturistic Native-mascots. As this is arguably the most negative depiction of Native Americans among the athletic-logos, the effect could be related to this mascot only and might indeed evoke negative feelings of any kind.

Avendano (2003) used the Implicit Association Test (IAT) to demonstrate that words describing Native nations (e.g. Navajo or Sioux) are more readily associated with negative evaluative words (e.g. rude, untrustworthy) than positive evaluative words (e.g. friendly, trustworthy). She also found that words describing European nations (e.g. Irish,

French) are more readily associated with positive evaluative words than negative evaluative words.

Burke (2007) replicated Avendano's study by replacing the words describing Native and European nations with the names of some Native mascots (e.g. Redskins) and Caucasian mascots (e.g. Celtics). If Native mascots are truly harmless, innocuous pictures that honor Native Americans, then there is no reason to expect that they will be more readily paired with negative words compared to positive words. However, Burke (2007) argues that this is what she found. Non-Native participants responded faster to "incompatible" pairings (Native-mascots + negative words and Caucasian-mascots + positive words) than to "compatible" pairings (Native-mascots + positive words and Caucasian-mascots + negative words). This is the strongest evidence so far that the already demonstrated negative evaluation of Native Americans might be activated solely by Native mascots and as such they are indeed perceived negatively.

Nevertheless, Burke's study has limitations. First, she also used only words that are both stereotypical, as well as negative. Therefore, it is unclear whether she indeed measured evaluations or just simply captured stereotypes (or some combination of the two). Second, even if she measured evaluations, she did not provide sufficient details about the reaction times of each condition. So, a possible alternative interpretation of her results cannot be ruled out. Consistent with the traditional IAT-scoring she combined the responses given to Native and Non-Native mascots. Consequently, the only finding she reported was that participants responded faster to "congruent" pairings (Caucasian-good, Native-bad) than to "incongruent" pairings (Caucasian-bad, Native-good). It is true that one possible interpretation of these results is that participants dislike Native American

mascots, so they more easily connect them to bad traits and have more difficulty connecting them to good traits. However, this would be a hasty conclusion based on these results.

The same result might have happened also because participants have very strong positive implicit attitudes towards Caucasian mascots and a neutral or even a mildly positive implicit attitude towards Native-mascots. This would result in very fast reaction times for "congruent" pairings of Caucasian mascots and positive words, as well as very slow reaction times for "incongruent" pairings of Caucasian mascots and negative words. The described pattern of results alone could explain the observed effect, even if the attitudes towards the Native-mascots are also positive. Without more detailed reports we are unable to find out what exactly contributed to the effect Burke (2007) reported: in-group favoritism, out-group apprehension or both.

Regardless of the discussed potential confounds, the convergence of the reported findings is impressive and definitively warrants further exploration. One way to shed more light on the mascot debate is to use different indirect measures and/or different research paradigms. This was the primary objective of the current study: replicating Burke's findings using a physiological method that more clearly measures affective evaluation than the IAT does. The secondary aim was to shed more light on the driving force behind this effect. Are the Native mascots perceived more negatively compared to Caucasian mascots because of out-group anxiety that somehow became conditioned to these symbols? In other words, it was hypothesized that Native mascots are more readily associated with fear compared to the Caucasian mascots.

Before turning to the description of the current study, a general overview of physiological measures will be provided, with a special emphasis on how these measures were used in the study of in-group/out-group evaluative bias.

Physiological implicit measures of attitudes

Physiological measures are the most clearly "implicit" measures of attitudes by their nature. It is very unlikely that participants will realize that the physiological devices attached to them measure their attitudes. It is even less likely that they can purposefully influence their physiological reactions to the presented attitude relevant stimuli. Physiological reactions are involuntary and hard to control (Schwartz, 2008), which are two important features of implicit processes. Several studies also demonstrated that physiological reactions occur very quickly, directing behavior much earlier than people consciously become aware of why did they behave how they did (Ito & Cacioppo, 2007).

A wide range of physiological measures was used so far under various research paradigms to study implicit attitudes. These measures range from costly and difficult brain imaging methods to the relatively inexpensive and easy to conduct autonomic response measures. As in the current study an autonomic measure was used, what follows is a brief overview of these measures only.

Autonomic measures

The most frequently used autonomic measures are cardio-vascular and electro-dermal activity. Cardio-vascular activity is most often quantified by heart rate, blood pressure and heart-rate variability. Electro-dermal activity is most often quantified by skin conductance level. The popularity of these measures stems in their low cost and their ease of acquiration. Furthermore, they are sensitive to even very weak affective stimuli that are not detectable by other physiological measures; however, they also have limitations. Most notably, they are not sensitive to the valence of the attitudes, only their intensity. In other words, both positive and negative stimuli increase their activity (Ito & Cacioppo, 2007).

The two most commonly used measures that do provide information about the valence of stimuli are electromyography and startle eye-blink modification (Ito & Caccioppo, 2007). Subtle facial movements as recorded by facial electromyography reflect both the intensity and the valence of the attitude. However, people might potentially be able to consciously control their facial muscles (Ito & Cacioppo, 2007). Furthermore, even if the actual movements are purely automatic, the obtained measures might be confounded by facial movements that are completely unrelated to the evaluative reaction (Schwarz, 2008). For these reasons, a measure that is rapidly gaining popularity in many areas of psychology is the startle eye blink modification. This was the primary measure used in the current study.

Affective Modulation of the Startle Response (AMSR)

Startle eye-blink is part of the whole body startle reflex, an automatic reaction to loud noises or other sudden and strong stimuli. The primary function of this reflex is protection from harm or injury (Bradley & Lang, 2007). Even though this reaction is automatic, it can be modified by other external (or internal) stimuli. Specifically, the startle response is facilitated if preceded by a negative stimulus and it is inhibited if preceded by a positive stimulus (Bradley & Lang, 2007). Although the affective stimuli modifying the startle response would not elicit startle by themselves, the modification effect happens most clearly in case of highly arousing stimuli, such as images of first person threat and erotica respectively. The described affective differentiation happens only if the interval between the stimulus and the startle probe (the noise) is of certain length, namely somewhere between 0.5 and 5 seconds (Bradley & Lang, 2007). According to Dempsey (2008), the best measures are achieved at intervals of 3-3.5 seconds.

Before turning to the description of the current study, a brief overview of the literature that examined the physiological underpinnings of (inter-group) attitudes will be provided. Although there is a vast literature on a wide range of physiological methods, the focus will be on startle modification, the method of choice for the current paper.

Attitudes and Affective Modulation of the Startle Response (AMSR)

The startle eye-blink modification is widely used as an index of the valence of stimuli. Despite of its popularity in wide range of areas in psychology (Dawson, Schell & Bohmelt, 1999), startle eye-blink modification was rarely the method of choice in attitude

research and not even other areas of social psychology. This is definitely puzzling given the fact that it is relatively inexpensive and easy to acquire and it is a fairly pure measure of the valence of the presented stimuli.

Phelps and her colleagues (2000) were among the first to find evidence that startle eye-blink modification is related to implicit race bias. They measured participants' amygdala activity and their AMSR responses while participants viewed faces of unknown Black and White individuals. Phelps and her colleagues also measured their responses on the implicit association test (IAT), using the same Black and White faces. The researchers found that both of these implicit measures of attitudes correlated with amygdala activity. From this, Phelps (2000) concluded that amygdala activity is an index of the implicit racial bias.

Amodio and his colleagues (2003) extended this research by looking at individual differences among low prejudiced individuals, measuring AMSR and motivation to respond without prejudice. They presented acoustic startle probes 4 seconds after they presented Black and White faces to their participants and also measured external and internal motivation to respond without prejudice. Participants did not differ in case of White faces. However, in case of Black faces, participants high in internal-, but low in external motivation to control prejudice displayed attenuated blinks than the other participants did (Amodio et al, 2003).

Recently, Gyurák and Ayduk (2007) looked at defensive physiological reactions to rejection. They presented paintings depicting rejection and acceptance themes, as well as paintings about generally negative or positive themes unrelated to rejection, followed by

acoustic startle probes (on average 4.5 seconds). They found that in general, people displayed larger blinks for images depicting rejection compared to images depicting acceptance. More interestingly, however, they also measured self esteem and found that people with low self-esteem displayed larger blinks than people high in self-esteem in case of rejection images, but no difference was found in case of acceptance images.

The results of Amodio (2003) and Gyurák (2007) suggest that AMSR is a good index of the evaluation of socially relevant stimuli, so it can be a very useful tool of social- and personality psychology. It appears that the method is especially effective in identifying intergroup biases, because it elegantly differentiates between positive, negative affective states. The AMSR corrects for all the problems inherent in IAT research: 1) it measures purely affect (without being confounded with stereotypes), 2) it can quantify evaluations of specific groups separately from each other and 3) it does have a zero point to which one can gauge the exact direction of the evaluation.

Nevertheless, a limitation of the AMSR is that it cannot determine the exact emotion evoked by a certain stimulus, only its valence. Recent research by Amodio and Devine (2006) suggested that implicit evaluative bias (as measured by the IAT) was predictive of anxiety related behaviors (quantified for example as further seating distance). Another group of researchers found compelling evidence, that out-group faces are more readily conditioned to fearful stimuli and are more resistant to extinction than in-group faces (Olsson, Ebert, Banaji & Phelps, 2005). Out-groups (and especially racial out-groups) from an evolutionary standpoint are perceived as threatening ones physical safety, therefore evoking fear responses (Neuberg, Kenrick & Schaler, 2010). Based on evolutionary theorizing and the cited findings, it was hypothesized that the differential

evaluation of the two types of mascots could be driven by inter-group anxiety and be captured also as a differential fear response.

The current study

No study so far used the AMSR in order to demonstrate the existence of implicit bias toward Native American mascots (and not even Native Americans). This was the primary goal of the current study. The secondary goal was to explore the idea that the driving force behind this bias is an automatically activated fear response.

Hypotheses

Affective Modulation of the Startle Response (AMSR)

It was predicted that AMSR will be significantly larger in the case of Native mascots compared to Caucasian mascots. It was also predicted that there will be significant startle amplification in the case of Native mascots compared to the positive images and a significant startle inhibition in the case of Caucasian mascots compared to the negative images. No difference was predicted in the case of Native mascots and negative images, as well as Caucasian mascots and positive images. Nevertheless, it was also hypothesized that both mascots will be in the neutral range too.

Conscious rating of the experimental images

It was predicted that participants will rate positive, negative and neutral images according to their valence. It was further predicted based on the vast literature on

intergroup-bias that the ratings of Caucasian and Native mascots will not differ from each other and that both of them will be rated neutral to mildly positive.

Weapon bias task

It was predicted that guns will be identified faster than tools regardless of whether they are preceded by a Caucasian or a Native mascot. It was further predicted that guns will be identified faster if preceded by a Native mascot than if preceded by a Caucasian mascot. Conversely, it was also predicted that tools will be identified faster if preceded by a Caucasian mascot than if preceded by a Native mascot.

CHAPTER III

METHODOLOGY

Participants

Twenty undergraduates (5 men, 15 women), from a South-Western University with a relatively high percentage of Native American students participated in the study. Their average age was 20 (range: 19-26) and 15 of them reported being Caucasian. All participants received course credit for their participation. Each participant was run in an individual session that lasted about 100 minutes.

Procedure and Materials

Upon arrival to the laboratory each participant received the consent form, informing that the study consists of three parts and it is concerned with reactions to different pictures. After signing the form, the participant was seated in a comfortable armchair in a small room, facing a computer screen placed on a distance of for four feet.

Affective Modulation of the Startle Response (AMSR)

The experimenters first verified the intensity of the acoustic startle probe to be around 105 dB, using a Radioshack Digital Sound Level Meter (model 33-2055). This was done to ensure safety of all participants and to maintain consistency throughout the study.

Next, the experimenters attached surface EMG electrodes to a muscle below the participant's eye (the orbicularis oculi). See Appendix (Figure 1) for graphical presentation of the electrode placement. The location of the placement of electrodes was chosen based on the recommendations of the Society for Psychophysiological research (Blumenthal, 2005). The site was first cleaned with an alcoholic wipe and then abraded with a Nuprep skin preparing gel (Weaver & Company, Aurora, CO). The surface electrodes (Ag-AgCl 4 mm, In Vivo Metric, E220-LS) were filled with Signa Gel electrode gel (Parker Laboratories, Fairfield, NJ) and placed on the prepared site. Finally, the experimenters verified that electrodes have a signal not higher than 10 kiloOhms (considered to be the best practice in AMSR research) using an impedance-meter (UFI Chectrode, model 1089mkIII, Morro Bay, CA).

Before the start of the experimental session, a habituation phase was administered, where the participant received 10 startle probes while looking at a blank screen. The participant then proceeded to the pre-programmed experimental session, where the pictorial images were presented. All affective images were taken from the International Affective Picture System (IAPS, Center for the Study of Emotion and Attention, 1995), meaning that they were standardized and commonly used in the startle modulation research paradigm before. The numbers in the next sentence refer to the specific numbers assigned to each

image in the IAPS image collection. Specifically 10 pleasant images, primarily erotica (1463, 2070, 4142, 4180, 4225, 4250, 4607, 4664, 4681, 7350), 10 unpleasant images depicting attacking animals and weapons pointing towards the camera (1050, 1120, 1300, 1321, 1525, 1931, 6230, 6244, 6250, 6300) as well as 10 neutral images depicting common household objects (7010, 7030, 7041, 7050, 7052, 7055, 7056, 7175, 7217, 7705) were shown. Each participant also watched images of 10 Native mascots (such as Braves or Fighting Sioux) and 10 Caucasian mascots (such as Vikings or Fighting Irish). See Appendix for the images of Caucasian and Native mascots.

The altogether 50 images were presented in one of the five pre-programmed semi-random orders. In the case of each participant 80% of the time a 105 dB acoustic 50 ms long startle probe with instantaneous rise time (<1 ms) was presented, 3.5 to 4.5 seconds following the presentation of the image, through binaural headphones the participant was wearing (Sennheiser, model HD 202). The varying time-interval was used to control for expectancy effects.

The raw electromyography (EMG) signal was collected via a BioPac V75-05 Bioamplifier, and amplified 50.000-times. This signal was then full-wave rectified using a bandpass filter setting of 8-150 Hz and a time constant of 10 ms, on a BioPac V76-23 contour-following integrator. Once acquired, these integrated signals were scored using the automated scoring procedure programmed in the BioPac Instruments Human Startle Software. Based on the guidelines of the Society for Psychophysiological Research, the startle response was calculated by taking the difference between the baseline (data immediately before the onset of the response) and the peak of that response within a 50 to 200 ms window following the onset of the probe.

To eliminate the large individual differences in tonic levels of the startle response, following Blumenthal (2005) and Dempsey (2008) a z-score transformation was performed to standardize the data within each participant. Then, these z-score startle responses to each stimulus type (positive, negative, neutral, native and Caucasian) were averaged for each participant separately, arriving to 5 different individual average scores.

The Weapon Bias Task

After the picture viewing session the participant received a laptop computer in order to complete the modified weapon-bias task. The experimenter told the participant that the study is testing speed as well as accuracy of responding and that all the specific instructions will be displayed on the computer screen. The instructions were the following: *"The next task measures speed and accuracy of responding under distracting conditions. You will see two pictures flashed quickly on screen, one after the other. The first picture will always be a sport mascot. Don't do anything in response to the mascot. This mascot signals that the second picture is about to appear. Classify the second picture as either a gun or a tool, by pressing the key labeled as "gun" or "tool" respectively. Try to respond as quickly and accurately as you can. If you make a mistake, don't worry. Just keep going to the next trial. You will have some practice trials before the main task begins. If you have any questions, please let the experimenter know."*

The target stimuli consisted of five different images of guns, five different images of hand tools (originally used by Payne, 2006). Five images of Caucasian mascots and five images of Native mascots were used as primes.

After the participants read the instructions, the experimenter started the computerized program. To ensure that the participants understood the task, the experimenter stayed in the cubicle for the first two out of the ten practice trials and then quietly left. After the tenth practice trial the following text appeared on the screen: *"You have now completed the practice trials. Press Space-bar to continue to the main task."*

The main task consisted of sixty trials appearing in a computer generated randomized order in case of each participant. The first picture in each trial was always a mascot and remained on the screen for 200 ms-s and then replaced by the target that was always a gun or a tool. This second picture remained on the screen for 200 ms-s too and was then replaced with a visual mask image. The mask remained on the screen until the participant pressed a key on the keyboard. There was a 500 ms break between each response and the start of the next trial.

At the end of the last, 60th trial the following text appeared on the screen: *"You have successfully completed the task. Please, open the door to let the experimenter know that you are done."*

Self-Assessment Manikin (SAM)

As a third measure, the participant proceeded to complete the Self-Assessment Manikin (SAM), a scale assessing ranking of all the pictures viewed on two separate scales of pleasure (unpleasant to pleasant) and arousal (dull to extremely arousing). The entire task was computerized and the participant was simply asked to click on the appropriate part of the 9-point rating scale for both dimensions (pleasure and arousal) separately, in case of each picture.

Given that the ratings were on the same scale and because there are no known individual differences, the scores were simply averaged across picture types in the case of each participant, arriving to 5 individual average scores for ratings of pleasure and arousal.

Upon completion of all these measures, each participant was thoroughly debriefed, thanked and dismissed.

Data Analysis. Planned t-tests were used to test the hypotheses described earlier. When testing apriori hypotheses, no alpha corrections were used. When testing exploratory, non-planned hypotheses, alpha was corrected using the modified Bonferoni correction (Keppel, 1991).

CHAPTER IV

FINDINGS

When controlled for multiple outliers, the results remained significant and the pattern of results also remained the same, with an even more clear distinction between positive and negative images. Therefore, in the following these, improved results are reported, what means that two participants (multiple outliers) were excluded from the analysis.

Affective Modulation of the Startle Response (AMSR)

To analyze the Affect Modulated Startle Reflex (AMSR) results, a within-subject analysis of variance (ANOVA) was conducted, followed by a series of simple paired t-tests. The results yielded a significant effect of picture type, $F(4, 68) = 8.77$, $p = 0.001$, $\eta^2 = 0.34$..

The planned, simple t-tests revealed that most of the original findings of startle reflex modulation were replicated. Specifically, startle reflex responses were significantly larger for negative images compared to positive images (M = 0.17, SD = 0.24 vs. M = - 0.36, SD = 0.23), t = - 6.39, $p < 0.001$, $\eta^2 = 0.706$. Also, in case of positive images, the traditional approach-related startle reflex inhibition was observed: startle reflex responses were significantly smaller for positive images compared to neutral images (M=-0.16, SD=0.28), t = 3.477, p = 0.03, $\eta^2 = 0.416$. However, in case of negative images, there was no evidence for the avoidance-related startle reflex attenuation: startle reflex responses showed only a marginally significant difference for negative images compared to neutral images, t = 4.215, p = 0.056, η^2 = 0,199. The exact same pattern of results was observed by other researchers as well (e.g. Amodio, 2003).

The results also supported the a priori hypotheses that Native mascots will be viewed more negatively than Caucasian mascots. On average, startle reflex responses were significantly larger for the images of Native American mascots compared to the images of Caucasian mascots (M = 0.009, SD = 0.37 vs. M = - 0.17, SD = 0.29), t = - 3.19, p = 0.005, $\eta^2 = 0.375$. Furthermore, startle reflex responses were also significantly larger for the images of Native American mascots compared to the positive images (t = 3.77, p = 0.002, $\eta^2 = 0.46$). Additionally, startle reflexes were significantly smaller for the images of Caucasian mascots compared to the negative images (t = - 3.95, p = 0.001, $\eta^2 = 0.48$). Finally, as expected, startle response reactions to both types of mascots were similar to responses to neutral images (t = 0.870, p = 0.40, $\eta^2 = 0.043$ and t = - 1.37, p = 0.19, η^2 = 0.100 respectively). See Table 1 for detailed summary of the results.

Self Assessment Manikin (SAM)

A within-subject analysis of variance (ANOVA) was conducted using rating of affect as dependent variable, followed by simple t tests. The results, again, yielded a significant effect of picture type, $F(4,68) = 28.33$, $p < 0.001$, $\eta^2 = 0.625$. Specifically, the typical ratings of affective images using the SAM scale were replicated: negative images were rated as more aversive than the neutral and the positive images (2.89 vs. 4.81 vs. 5.32, $t = -6.26$, $p < 0.001$, $\eta^2 = 0.70$ and $t = 5.96$, $p < 0.001$, $\eta^2 = 0.68$ respectively). Furthermore, positive images were rated as more pleasant than the neutral images ($t = 1.76$, $p < 0.001$, $\eta^2 = 0.15$). As predicted, there was also no difference in affective ratings of the two types of mascots (5.06 vs. 5.16, $t = -1.31$, $p = 0.41$, $\eta^2 = 0.09$). Exploratory analyses further revealed that both Caucasian and Native mascots were rated as significantly more pleasant than negative images ($t = 7.279$ $p < 0.001$, $\eta^2 = 0.76$ and $t = 9.583$, $p < 0.001$, $\eta^2 = 0.84$ respectively). See Table 2 for detailed summary of the results.

Weapon Identification Task

Error rates

As expected based on previous research using the same research paradigm (e.g. Payne, 2001) the number of errors was very small in general and the analysis yielded no significant results when comparing the two types of mascots. If anything, participants made fewer errors when the picture was preceded by Native mascots; however this result was not significant. (See Table 3 for detailed results.)

Reaction times

Only the reaction times of correct responses falling within two standard deviations (latencies between 200 and 900 ms-s) were included in the analysis. The results replicated previous findings that guns were identified more quickly than tools regardless of the stimulus that preceded them. Specifically, participants were faster to identify guns than tools when they followed Caucasian mascots (305 ms vs. 355 ms, $t = 6.03$, $p < 0.001$, $\eta^2 = 0.71$). Participants were also faster to identify guns than tools when they followed Native mascots (292.84 ms vs. 352.37 ms, $t = 7.18$, $p < 0.001$, $\eta^2 = 0.77$). The results also found support for the expected race bias. Specifically, participants were somewhat faster to identify guns when they followed Native mascots compared to when they followed Caucasian mascots ($t = 2.283$, $p = 0.037$, $\eta^2 = 0.26$). However, participants did not differ in the speed of identification of tools in case of the two mascot-types ($t = 0.385$, $p = 0.545$, $\eta^2 = 0.010$). See Table 3 for detailed summary of the results.

AMSR and the Weapon Bias

The results revealed that individuals show an evaluative bias both at physiological level (AMSR) as well as implicit cognitive level (weapon bias). One possibility is that the physiological implicit bias is driven by inter-group anxiety (that the weapon-bias is tapping on). To investigate this idea, two different bias scores were calculated and regressed on each other. First, a Physiological Bias score was calculated by subtracting the AMSR score for Caucasian mascots from the AMSR score for Native mascots. Theoretically, individuals who show a larger eye-blink to Native mascots compared to the Caucasian mascots, feel more negatively about the Native mascots. Second, a Fear

Bias was calculated by subtracting the gun reaction times for Native mascots from the gun reaction times for Caucasian mascots. Higher scores on both of these measures suggest higher bias and anxiety response respectively.

To test the hypothesis that intergroup anxiety is the driving force behind the observed difference in AMSR, the calculated Fear Bias scores were regressed on the calculated AMSR bias scores. The results revealed that the Fear Bias scores did not significantly predict the AMSR Bias scores, β = -0.039, $t(17) = -0.158$, $p = 0.876$. The Fear Bias scores explained only a small proportion of variance in the AMSR Bias scores, $r^2 = 0.002$, $F(1, 17) = 0.025$, $p = 0.876$.

CHAPTER V

CONCLUSION

Prejudice and negative discrimination of others based on their belonging to a certain group is a controversial issue that is treated with utmost delicacy in the contemporary western world and especially in the United States. Theoretically, we should object every kind of discrimination, defined as "differential treatment of individuals" (Bodenhausen & Devine, 2010), and most Americans are indeed rather successful in it. For this reason it is surprising how lightheartedly the issue of Native American mascots was treated in the past, even though several Native American organizations raised their voice that they find these mascots offensive and that they would wish if they are discontinued. The supporters of the mascots are basing their argument on one large-scale survey published in a non-academic journal (*Sports Illustrated*) revealing very little about its methodology, simply stating that people, in general, favor Native mascots. A big problem with survey-type studies is that people are unlikely to reveal their true attitudes (or often times they are even unaware of them), especially if these attitudes are negative evaluations of members of other groups.

Recently, few studies attempted to tap on people's "unconscious" (implicit/automatic) reactions to Native mascots and although the results are promising, these studies still suffer from shortcomings. Burke (2007, 2010), used the Implicit Association Test and found evidence that just like Native Americans are perceived more negatively than Caucasian Americans are, Native mascots too are perceived more negatively than Caucasian mascots are. However, one problem with Burke's studies (2007, 2010) is that it is not exactly clear if her participants really perceived the Native mascots negatively or they simply had very strong positive associations with the Caucasian mascots – a problem inherent in every IAT study. The second problem is, that Burke (2007, 2010) confounded evaluations with stereotypes, so it is not exactly clear whether the associations her participants made in case of Native mascots were negative evaluations (often referred as "prejudice") or simply "stereotypical" associations.

In the current study an implicit measure was used that eliminates these two major problems: 1) it clearly measures evaluation (affect) and not stereotypes (cognition), and 2) it makes exactly clear the specific valence of the participants' evaluative responses in case of each type of mascot separately (and not just relatively). Specifically, the Affective Modulation of the Startle Response was used, a procedure considered to be a direct measure of affect via the measurement of changes in participants' eye-blink responses. The main goal was to gauge the affective valence of the reaction that these two types of mascots elicit in individuals. Theoretically, all mascots are designed to be intimidating, so there should be no difference in the valence of the effect evoked by Caucasian and Native American mascots.

When asked for their conscious evaluations of these images, on average, participants stated that they felt equally positively about the Caucasian and Native mascots. This supports the findings reported in *Sports Illustrated.* Nevertheless, looking at the physiological responses of same participants, just as expected, the evaluations were completely different. On average, participants reacted to Native mascots more negatively than they reacted to the Caucasian mascots. Furthermore, their affective responses to Native mascots resembled their responses to negative images (threat) but differed from their responses to positive images (erotica). Conversely, their affective responses to Caucasian mascots resembled their responses to the positive images (erotica) but differed from their responses to the negative images (threat). This provides clear evidence that Native mascots are indeed perceived negatively, while Caucasian mascots are perceived positively, so it rules out one of the biggest potential criticisms of Burke's findings (2007, 2010) that her results might be simply explained by very positive evaluation of Caucasian mascots.

Nevertheless, it should be stated that although the AMSR is a pure measure of valence (without any confound with stereotypes), it cannot differentiate between specific emotions on either side of the spectrum. One criticism of the IAT results regarding Native mascots was that even if there are negative evaluations involved, the associations of the negative stereotypical words with Native mascots could have happened because of egalitarian attitudes (a genuine sorry & guilt about the tragedy of Native Americans) rather than hatred. Although, it is true that the AMSR can tap only a general affective reaction, based on the results of the current study it would be a stretch to say that egalitarian attitudes (such as pity) are responsible for the results. Participants not only

showed a negative physiological response towards Native mascots, but their responses were indistinguishable from their responses to threat/personal harm negative images. Nevertheless, exactly because the AMSR provides only information about affective valence, it was important to start exploring the potential driving force behind this differential reaction to Native- and Caucasian mascots.

Based on evolutionary theory, as well as recent implicit bias research (Amodio & Devine, 2006; Olsson, Ebert, Banaji & Phelps, 2005), it was hypothesized that Native mascots are more readily associated with fear/anxiety than Caucasian mascots are. To explore this idea, a modified version of the weapon bias task (Payne, 2001, 2006) was used, replacing the African-American and Caucasian face primes with the Native and Caucasian mascots. The results supported the hypothesis, showing that participants responded faster to guns than tools, especially if they were preceded by Native mascots compared to if they were preceded by Caucasian mascots. This provides preliminary evidence that the Native mascots might be perceived more negatively, because they are anxiety provoking.

So far, there is no evidence that an innocuous drawing, a symbolic representation of a group can evoke such strong reactions that are comparable to the reactions of the actual out-group. It is not exactly clear what the weapon bias task measures. However, it would be difficult to explain the AMSR results anyhow else, but reflecting genuine negative evaluations of the Native mascots, a reflex that cannot be controlled even if one is completely familiar with the theory (Dempsey, 2010). The convergence of the results in the current paper with each other, as well as with previous findings (e.g. Burke, 2007, 2010) strongly suggests that individuals are indeed reacting to mascots just like they are

real out-group members. If this is true, based on evolutionary theory, it might have larger, societal implications that should not be ignored by policy makers.

First, mascots might act as environmental primes that place people into a state of preparedness to threat, intensifying the effects of already existing out-group bias. In other words, it is possible that when exposed to Native mascots (e.g. attending an institution with a Native mascot), individuals become more rejecting and hostile towards out-group members (regardless of the type of the out-group: racial, ethnic, sexual orientation etc).

Second, evolutionary theory suggests and research indeed found preliminary support that males are especially inclined to evaluate negatively out-group members and they are also more likely to react in a more hostile way towards them (Navarette, Olsson, Ho, Mendes, Thomsen & Sidanius, 2009). Given the small number of males in current study, this hypothesis could not be investigated directly. Nevertheless, as males are especially likely to be exposed to mascots given their higher involvement in spectator sports at colleges, this potential gender difference might be important issue to consider.

Third, our analysis revealed that individuals were both more likely to perceive Native mascots as more aversive and more threatening than Caucasian mascots, however, these two measures were unrelated to each other. In other words individuals who perceived the mascots the most aversive were not the same who perceived them as the most threatening. This might suggest that although threat is part of the negative evaluative response to these images, it is not the only or maybe not even the most important component. Future studies should investigate the role of other possible specific aversive

emotions; such is, for example, disgust and the related behavioral response of physical distance.

Finally, it should be noted that although evolutionary explanations gained immense popularity in contemporary social psychology, they are not the only (and possibly not even the best) way to explain psychological phenomena. An equally plausible explanation for the observed evaluative bias to Native compared to Caucasian mascots can be given by learning theory as well. Such an environmental account might say that the observed difference could be predicted simply by looking at the portrayal of Native Americans in movies and printed media that an average American might encounter on a daily basis since early age. Westerns are a popular entertainment for children and in these movies Native Americans are most of the time portrayed as aggressive almost subhuman groups that pose threat and danger to the cowboys. In the same line, if a media features any information about Native Americans, it is usually, again, a negative depiction: bringing attention to the higher incidence rate of drug abuse and alcoholism, as well as unemployment and low level of education among Native Americans. All this negative information becomes associated to Native Americans from early on in most individuals lives and without being counteracted with other positive information, only becomes reinforced throughout the lifespan.

All these potential implications and considerations are worthy of further investigation with more directly experimental designs and/or different operational definitions of the constructs. However, even with its limitations to fully explain the driving force behind the negative evaluation of Native mascots, the current research is an important addition to the research on Native mascots, as well as to the research on intergroup bias in general.

This is the first demonstration that innocent and seemingly positive images, if somehow conditioned to a minority group, can evoke negative emotions in the observers and specifically they might even lead to the experience of threat. Based on evolutionary and behaviorist theory, it can be assumed that if activated, such feelings might have adverse effects not only on reactions to Native American individuals but on behaviors directed towards any out-group in general. Given this potential global negative impact of Native mascots, especially within institutions where they are used, it is time to pay more heed to them than relegating the issue to the pages of *Sports Illustrated*.

REFERENCES

Allport, G. W. (1935). Attitudes. In C. M. Murchison (Ed.), *Handbook of Social Psychology*. Winchester, MA: Clark University Press.

Amodio, D.M., & Devine, P.G. (2006). Stereotyping and evaluation in implicit race bias: Evidence for independent constructs and unique effects on behavior. *Journal of Personality and Social Psychology, 91,* 652-661.

Amodio, D.M. (2008). The social neuroscience of intergroup relations. *European Review of Social Psychology, 19,* 1-54.

Amodio, D.M., Harmon-Jones, E., & Devine, P.G. (2003). Individual differences in the activation and control of affective race bias as assessed by startle-eyeblink responses and self-report. *Journal of Personality and Social Psychology, 84,* 738-753.

Avendano, K. (2006). *Investigation of negative implicit bias towards Native Americans among Caucasian college students.* Unpublished Master Thesis, Oklahoma State University.

Bargh, J. A. (1994). The four horsemen of automaticity: Awareness, intention, efficiency and control in social cognition. In: R.S. Wyer, Jr. & T.K. Srull (Eds.): *Handbook of social cognition 2nd ed.* (pp. 1-40). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Blumenthall, T.D., Cuthbert, B.N., Filion, D.L., Hackley, S., Lipp, O.V. & van Boxtel, A. (2005). Committee report: Guidelines for human startle eyeblink electromyographic studies. *Psychophysiology, 42(1),* 1-15.

Bodenhausen, G. V., & Richeson, J. A. (2010). Prejudice, stereotyping, and discrimination. In R. F. Baumeister & E. J. Finkel (Eds.), *Advanced social psychology* (pp. 341-383). Oxford University Press.

Bradley, M.M. & Lang, P.J. (2007). Emotion and motivation. In. Cacioppo, J.T., Tassinary, L.G. & Bernston, G.G. (Eds). *Handbook of psychophysiology* (pp. 581-607). Cambridge: Cambridge University Press.

Burke, A.L. (2006). *An examination of implicit attitudes toward Native-American sport mascots.* Unpublished Master Thesis, Oklahoma State University.

Burke, A.L. (2010). *Behavioral correlates of implicit evaluation and stereotyping of Native American mascots.* Unpublished PhD Thesis, Oklahoma State University.

Chaney, J. (2008). *Personal communication.*

Clark, R., Anderson, N.B., Clark, V.R. & Williams, D.R. (1999). Racism as a stressor for African Americans – A biopsychosocial model. *American Psychologist, 54*(10), 805-816.

Dawson, M.E., Schell, A.M. & Bohmelt, A.H. (1999). *Startle modification. Implications for neuroscience, cognitive science and clinical science.* Cambridge: Cambridge University Press.

Delgado, M.R., Olsson, A. & Phelps, E.A. (2006). Extending animal models of fear conditioning to humans. *Biological Psychology, 73*, 39-48.

Dempsey, J.P. (2006). Smoking-cue modulation of the startle reflex and the relationship to stages of change. *Unpublished Dissertation.*

Dempsey, J.P. (2008, 2010). Personal communication.

Devos, T. (2008). Implicit attitudes 101: Theoretical and empirical insights. In: W.D. Crano & R.S. Prislin (Eds), *Attitudes and attitude change* (pp. 61-84). New

York: Psychology Press.

Dovidio, J.F., Kawakami, K., Johnson, C., Johnson, B. & Howard, A. (1997). On the nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology, 33,* 510-540.

Freng, S. (2001). *The role of chief Wahoo in implicit stereotype activation.* Unpublished Doctoral Dissertation, University of Nebraska.

Fryberg, S.A. (2003). *Really? You don"t look like an American Indian: Social representations and social group identities.* Unpublished Doctoral Dissertation, Stanford University.

Gyurak, A., & Ayduk, O. (2007). Defensive physiological reactions to rejection. The effect of self-esteem and attentional control on startle responses. *Psychological Science, 18*(10), 886-892.

Harris (2002) Indian Wars. *Sports Illustrated*, March 4, 2002.

Hugdahl, K. & Johnsen, B. (1989). Preparedness and electrodermal fear-conditioning: ontogenetic vs phylogenetic explanations. *Behavior Research and Therapy, 27(3),* 269-278.

Ito, T.A. & Cacioppo, J.T. (2007). Attitudes as mental and neural states of readiness: Using physiological measures to study implicit attitudes. In B. Wittenbrink &

N. Schwarz (Eds.) *Implicit measures of attitudes: Progress and controversies* (pp.125-158). New York: Guilford.

Navarette, C.D., Olsson, A., Ho, A.K., Mendes, W.B., Thomsen, L. & Sidanius, J. (2009). Prepared learning and the gendered nature of out-group fear. *Psychological Science, 20,* 155-158.

Neuberg, S.L., Kenrick, D.T. & Schaller, M. (in press). Human threat management systems: Self-protection and disease avoidance. *Neuroscience and Biobehavioral Reviews.*

Olsson, A., Ebert, J.P., Banaji, M.R. & Phelps, E.A. (2005). The role of social groups in the persistence of learned fear. *Science, 309,* 785-787.

Olsson, A. & Phelps, E.A. (2007). Social learning of fear. *Nature Neuroscience, 10(9),* 1095-1102.

Payne, K.B. (2001). Prejudice and perception: The role of automatic and controlled processes in misperceiving a weapon. *Journal of Personality and Social Psychology, 81,* 181-192.

Payne, K.B. (2006). Weapon bias. Split-second decisions and unintended stereotyping. *Current Directions in Psychological Science, 15*(6), 287-291.

Phelps, E.A., O'Connor, K.J., Cunningham, W.A., Funayama, S., Gatenby, J.C.,

Gore, J.C., & Banaji, M.R. (2000). Performance on indirect measures of race evaluation predicts amygdale activation. *Journal of Cognitive Neuroscience, 12,* 729-738.

Phelps, E.A. (2006). Emotion and cognition: Insights from studies of the human amygdala. *Annual Review of Psychology, 57,* 27-53.

Robidoux, M.A. (2006). The nonsense of Native-American sport imagery – Reclaiming the past that never was. *International Review for the Sociology of Sport, 41*(2), 201-219.

Schwarz, N. (2008). Attitude measurement. In W.D.Crano & R. Prislin (Eds.) *Attitudes and attitude change* (pp. 41-60). New York: Psychology Press.

Stanley, D., Phelps, E. & Banaji, M. (2008). The neural basis of implicit attitudes. *Current Directions in Psychological Science, 17(2),* 164-170.

Wolburg, J.M. (2006). The demise of Native American mascots: it's time to do the right thing. *Journal of Consumer Marketing 23(1),* 4-5. .

APPENDICES

Table 1.

AMSR.

	Positive	Caucasian	Neutral	Native	Negative
Mean – all w/o outliers	- 0.28 - 0.358	- 0.166 - 0.166	- 0.006 - 0.016	+ 0.105 + 0.091	+ 0.106 + 0.168
St. Deviation (w/o outliers)	0.232	0.296	0.283	0.370	0.238

.

Table 2.

SAM – Valence.

	Positive	Native	Caucasian	Neutral	Negative
Mean	5.317	5.183	5.017	4.806	2.894
St. Deviation	1.272	0.677	0.469	0.532	1.284

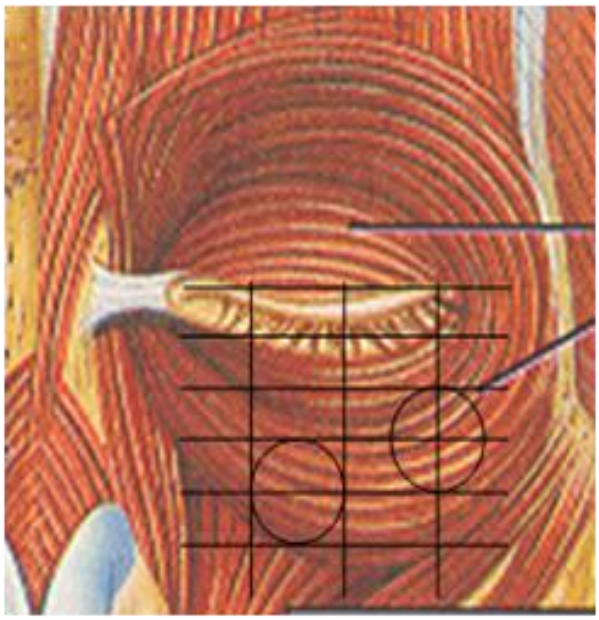
Table 3.

Weapon-bias task.

	Errors – Mean (SD)	Reaction time – Mean (SD)
Native - Gun	2.263 (1.694)	292.837 (35.662)
Caucasian - Gun	2.158 (1.642)	305.510 (37.108)
Native - Tool	2.842 (2.500)	352.373 (42.690)
Caucasian - Tool	3.263 (2.663)	355.882 (47.013)

Picture 1.

Placement of AMSR electrodes

 .

VITA

Csongor Daniel Hornyik

Candidate for the Degree of

Master of Science/Arts

Thesis: MASCOTS OF FEAR

Major Field: PSYCHOLOGY

Biographical:

Education:

Completed the requirements for the Master of Science in Psychology at Oklahoma State University, Stillwater, Oklahoma in December 2010.

Completed the requirements for the Master of Science in Social Psychology at Vrije Universiteit, Amsterdam, The Netherlands, in July, 2007

Completed the requirements for the Bachelor of Science/Arts in Psychology at University of Kentucky, Lexington, Kentucky in May, 2004.

Name: Csongor Daniel Hornyik Date of Degree: December 2010*

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: MASCOTS OF FEAR

Pages in Study: 46 Candidate for the Degree of Master of Science

Major Field: Psychology

Scope and Method of Study:

Numerous Native American organizations requested the discontinuation of the use of Native images in high schools and colleges, but many educational institutions still oppose the change. So far, there is no convincing evidence about how harmful Native American mascots are. The primary goal of this paper was to examine if these images are truly aversive, using a well established physiological measure the affective modulation of the startle response (AMSR). The secondary goal of this paper was to elucidate on the question what drives this effect, using a well established reaction-time measure of implicit attitudes, the Weapon Identification task.

Findings and Conclusions:

The results supported the hypotheses that images of Native American mascots were perceived as aversive when measured with the physiological measure of the startle response. The results also found preliminary evidence for the hypothesis that one of the driving forces of this effect could be an automatically activated fear response. This is the first demonstration that seemingly neutral images, if associated with a minority group, can evoke negative emotional reactions in the observer, specifically potentially leading to a fear response.

ADVISER'S APPROVAL: Dr. Charles I. Abramson