IMPLICIT AND EXPLICIT BIAS AGAINST HISPANICS

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Introduction:

- Systemic racial and ethnic biases continue to permeate the American social order, often manifesting without conscious awareness.
- Previous research examining implicit biases against Blacks using paradigms such as the startle eyeblink and the Implicit Association Test (IAT) have found evidence of White bias towards Blacks, often in the absence of explicit biases:
  - •Amodio et al. (2003): utilized Black, White, and Asian faces as affective primes, finding potentiated startle eyeblinks during Black face primes, relative to White and Asian face primes.
  - •Phelps et al. (2000): Also utilizing fMRI, found potentiation of eyeblinks during Black face primes, relative to White face primes. Correlated biased IAT and startle eyeblink responses with increased amygdala activation.
  - •Weyant (2005): found negative evaluative bias on the IAT towards Hispanic exemplars among White participants
- The startle eyeblink and IAT are purported to be measures of implicit bias:
  - •While the startle eyeblink is said to be an index of implicit affective bias reflective of amygdala activation, the IAT is purported to be an index of implicit evaluative bias, reflective of semantic level associations (CITE).
  - •While these measures are generally supported as indexes of bias, no studies could be located that directly correlated startle and IAT results.

Objectives:

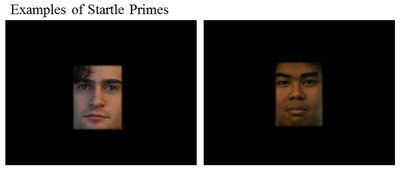
- To expand on extant research by using White/Hispanic exemplars to determine whether implicit biases found among Whites utilizing White/Black exemplars are generalizable to other ethnic groups .
- To investigate the existence of a correlation among the startle eyeblink and IAT, as two measures of implicit bias.

Methods:

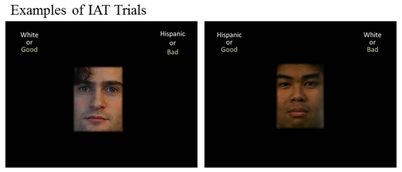
Stimuli:

- Startle and IAT stimuli were forty 5" x 3.86" photos of Hispanic and White male faces, taken from the Face Recognition Technology database (Phillips et al., 1998).

Examples of Startle Primes



Examples of IAT Trials



Subjects:

- Twenty-seven females (mean age = 21.5 years) with normal or corrected-to-normal vision and no hearing impairments.

Procedure:

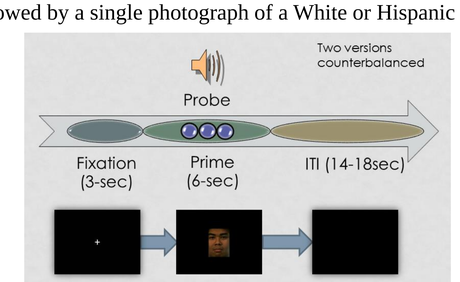
- Completion of startle paradigm and IAT– task order counterbalanced. Pettigrew and Meertens (1995) self-report attitudes scale completed last.

Electrophysiological Recording and Analysis:

- EMG recorded from two Ag-AgCl skin electrodes places on the orbicularis oculi muscle underneath the left eye, with a ground electrode placed on the forehead.
- Eyeblink amplitude was measured using a BioPac EMG100C electromyogram amplifier running AcqKnowledge 3.8.1 software (Biopac, Goleta, CA).
- EMG data were collected at a rate of 2000 samples/second and amplified (gain = 5000), notch filtered (60Hz), and bandpass filtered (HP = 10Hz, LP =500Hz)
- Band stop (57-63Hz) and band pass (HP = 28Hz, LP = 500Hz) filters applied offline
- Raw EMG data were rectified, and fully integrated, averaged over 20 samples utilizing the root mean square.
- Intraparticipant EMG amplitudes standardized into Z-scores

Startle Paradigm:

- Began with fixation (3000ms), followed by a single photograph of a White or Hispanic male (6000ms).
- Two to four seconds after the presentation of a randomized subset of 20 primes, an acoustic startle probe (50-ms burst of 1000Hz, 100-dB white noise) was rendered binaurally through stereo headphones.
- Intertrial ranged from 14 – 18 seconds.



Methods (Cont'd):

Implicit Association Test:

- Conventionally designed IAT consisting of seven blocks of trials: five practice and two test.
- First test block: instructed to identify White or Hispanic faces and good (e.g., love, happy, joy) or bad (e.g., evil, hurt, agony) words.
- Second test block reversed the target/attribute pairings.
- Test blocks were counterbalanced across participants.
- The first two trials of each test block were dropped prior to analysis. Trials with RT latencies +/- 2.5 *SD* from the intraparticipant mean were eliminated.

Sequence of IAT Trial Blocks

Block	Number of Trials	Function	Items assigned to 1-key response	Items assigned to 2-key response
1	20	Practice	White images	Hispanic images
2	20	Practice	Good words	Bad words
3	20	Practice	Good words + White images	Bad words + Hispanic images
4	40	Test	Good words + White images	Bad words + Hispanic images
5	20	Practice	Hispanic Images	White image
6	20	Practice	Good words + Hispanic images	Bad words + White images
7	40	Test	Good words + Hispanic images	Bad words + White images

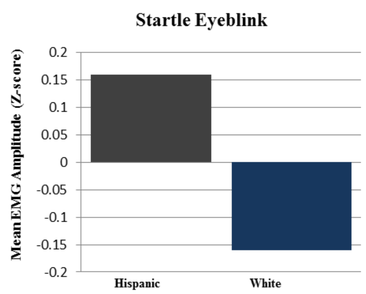
Pettigrew and Meertens Prejudice Scale:

- Traditional self-report measure of attitudes.
- Contains two subscales: Subtle and Blatant.
- 4-point Likert-type scale; responses on each scale tabulated separately for analysis.

Results:

Startle Paradigm

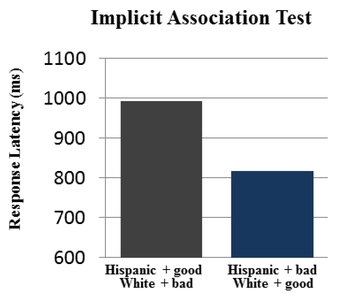
- Mixed ANOVA with prime type as within subjects factor, and task, and task version as between subjects factors revealed significantly larger eyeblinks during Hispanic primes than during white primes, $F(1, 23) = 7.92$, $p = .01$, $\eta_p^2 = .256$.



Mean startle eyeblink EMG amplitude to Hispanic and White faces.

Implicit Association Test

- A mixed ANOVA with IAT trial type as within subjects factor, and task, and task version as between subjects factors conducted on IAT mean reaction times revealed significantly faster responses to Hispanic + bad/White + good trials than to Hispanic + good/White + bad trials, $F(1, 23) = 56.85$, $p < .001$, $\eta_p^2 = .712$.



Mean IAT response latency to Hispanic + good/White + bad and Hispanic + bad/White + good.

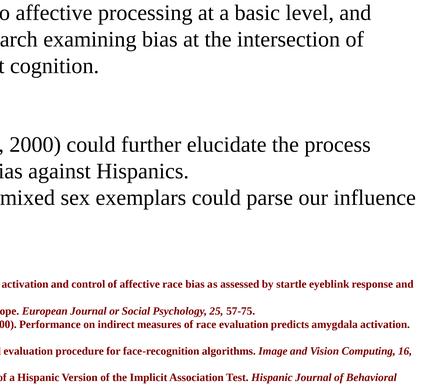
Correlational analyses

- IAT response latencies were not correlated with startle eyeblink amplitudes, $r(27) = -.12$, $p = .56$.
- Trend whereby participants with greater eyeblink bias (positive difference score) tended to score higher on the subtle PMP sub-scale, though this did not reach significance, $r(27) = .32$, $p = .10$.

Bivariate Correlations (N = 27)

	1. Startle Eyeblink	2. Blatant Score	3. Subtle Score	4. IAT
1. Startle Eyeblink	----			
2. Blatant Score	.268	----		
3. Subtle Score	.321	.776***	----	
4. IAT	-.118	.249	.071	----

Note. ***p < .001



Conclusions:

- Eyeblink potentiation during Hispanic primes, relative to White primes, is indicative of negative affective bias towards Hispanics.
- IAT results, as an indirect measure of implicit evaluative bias, suggest an automatic and implicit negative evaluative bias toward Hispanics, relative to Whites.
- Although both indirect measures indicated bias, there was no correlation between them.
  - IAT as a model of semantic associations between category targets and category attribute is reflective of the cognitive component of attitudes.
    - IAT effect is a result of implicit evaluative bias.
  - Startle reflex is an index of affective state, reflective of the affective component of attitudes.
    - Startle results reflect an implicit affective bias.
  - The different forms of bias measured by IAT and startle methods may indicate that these measures seemingly differ on levels of processing related to higher functioning.
- This study is the first to use startle eyeblink as a measure of bias toward Hispanics.
  - Results of this study suggest that implicit bias towards Hispanics can be measured using indirect measures, like the startle eyeblink.
- Builds on previous research linking bias to affective processing at a basic level, and effectively contributes to the body of research examining bias at the intersection of neurological, affective, and social implicit cognition.

Future directions:

- Mixed measure designs (e.g. Phelps et al., 2000) could further elucidate the process underling the startle eyeblink as well as bias against Hispanics.
- Larger mixed sex cohorts combined with mixed sex exemplars could parse our influence of sex on affective response.

References:

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

Pettigrew, T., & Meertens, R. (1995). Subtle and blatant prejudice in western Europe. *European Journal or Social Psychology, 25*, 57-75.

Phelps, E., O'Connor, K., Cunningham, W., Funayama, E., Gatenby, C., et al. (2000). Performance on indirect measures of race evaluation predicts amygdala activation. *Journal of Cognitive Neuroscience, 12*, 729-738.

Phillips, P., Weschler,H., Huang, J., & Rauss, P. (1998). The FERET database and evaluation procedure for face-recognition algorithms. *Image and Vision Computing, 16*, 295-306.

Weyant, J. (2005). Implicit Stereotyping of Hispanics: Development and Validity of a Hispanic Version of the Implicit Association Test. *Hispanic Journal of Behavioral Sciences, 27*, 355-363.

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