Greetings From the New Editor for the Psi Chi Journal of Undergraduate Research

Randolph A. Smith*, Lamar University


Kirsten L. Rewey, ACET, Inc.; Tina L. Velasquez, University of Wisconsin-Stout

Reducing Own-Age Bias: Does Contact Improve Young Adults’ Recognition of Older Faces?

Emily N. LeDonne, Christopher R. Poirier*, and Lincoln G. Craton**; Stonehill College

Exploring the Effects of Familiarity and Synchrony on the McGurk Effect

An Mai, Mercer University

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Face Your Fears: Attentional Biases Toward Emotional Faces Depend on Specific Low-Level Anxiety Symptoms

Aaron Shilling, Western Illinois University; Sheryl Reminger*, University of Illinois at Springfield

* Faculty mentors, **Faculty

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The twofold purpose of the Journal Purpose Statement is to foster and reward the scholarly efforts of undergraduate psychology students as well as to provide them with a valuable learning experience. The articles published in this journal represent primarily the work of the undergraduate student(s). Faculty mentors, who deserve recognition, are identified by an asterisk next to their name or on a separate byline.

Because the articles in this journal are primarily the work of undergraduate students, the reader should bear in mind that:

1. The studies are possibly less complex in design, scope, or sampling than professional publications and
2. The studies are not limited to significant findings. The basis for accepting papers for publication is the agreement among three professional reviewers that the project, hypothesis, and design are well researched and conceived for someone with an undergraduate level of competence and experience.

Instructions for Contributors

The Psi Chi Journal of Undergraduate Research encourages undergraduate students to submit manuscripts for consideration. Submissions are accepted for review on an ongoing basis. Although manuscripts are limited to empirical research, they may cover any topical area in the psychological sciences.

1. The primary author of a submitted manuscript must be an undergraduate student who is a member of Psi Chi. Manuscripts from graduate students will be accepted only if the work was completed as an undergraduate student and not more than 6 months has passed since graduation. Additional authors other than the primary author may include non–Psi Chi students as well as the faculty mentor or supervisor.

2. Only original manuscripts (not published or accepted for publication elsewhere) will be accepted.

3. All manuscripts must be prepared according to the Publication Manual of the American Psychological Association (5th ed.).

4. What to submit:
   a. A Microsoft® Word electronic copy of the complete manuscript with figures, tables, and charts generated in either Word or Excel. Any scanned images or illustrations must be at least 600 dpi resolution. Make sure that identifying names, affiliations, etc. appear only on the title page and nowhere else on the manuscript (i.e., manuscripts should be reasonably free of clues to the identity of the authors). Footnotes that identify the author(s) should appear on a separate page.
   b. An email address so that receipt of your manuscript can be acknowledged.
   c. A sponsoring statement from the faculty mentor who attests:
      (1) that the research adhered to APA ethical standards;
      (2) that the mentor has read and critiqued the manuscript on content, method, APA style, grammar, and overall presentation; and
      (3) that the planning, execution, and writing of the manuscript represent primarily the work of the undergraduate student.

Submit all electronic files to: psichjournal@psichi.org
SPECIAL INVITED ARTICLE

Greetings From the New Editor for the *Psi Chi Journal of Undergraduate Research*

RANDOLPH A. SMITH
Lamar University

**My Interests in Research**
Let me provide a little background on myself and my relevant experience. As an undergraduate and graduate student, I was both encouraged to and supported in conducting research studies, so I have long known the value of students engaging in research. I received my BS from the University of Houston (TX) and my PhD in experimental psychology from Texas Tech University in 1978. I spent 26 years of my teaching career at a small private liberal arts college (Ouachita Baptist University in Arkadelphia, AR) where I taught Statistics, Experimental Psychology, and Research Methods for every psychology major in the program. Because of my belief in the importance of research experience for undergraduate students, I required all students in the Experimental and Research Methods courses to develop an original research proposal and to carry out that proposed project. It was a lot of work, to be sure, but I firmly believe that all students benefited from this approach—even (perhaps especially) those who did not go to graduate school. I also helped found the Arkansas Symposium for Psychology Students—a meeting for students to give presentations of their research projects—over 25 years ago. As I experienced as a student, I have spent much of my career supporting and encouraging undergraduate research.

**My Experience as an Editor**
In the 1980s, I learned about the journal *Teaching of Psychology (ToP)* and met its editor, Dr. Charles L. Brewer. Because of my interest in teaching and Charles’ kind offer, I began to review manuscripts for *ToP*. Apparently I did a good job of reviewing because Charles sent me more manuscripts to review! Later, he asked me to become a consulting editor for the journal. After many years of reviewing and serving as a consulting editor, I was chosen to serve as editor after Charles finished his two terms. I spent 12 years as the Editor of *ToP* (1997–2008), so I have a good deal of experience that I bring to the editorship of the *Psi Chi Journal of Undergraduate Research*.

**My Philosophy**
I believe that the most important thing I bring to editing the *Psi Chi Journal* is a firm conviction that reviewing and editing should serve both educational and supportive functions. Almost any faculty member can relate a horror story about having sent a manuscript out for review and receiving harsh, punitive feedback about the paper. It almost seems as though some reviewers and editors see their function as gatekeeping—they seem to want to keep authors from publishing rather than helping authors to publish. Rest assured that this philosophy is not in place at the *Psi Chi Journal of Undergraduate Research*! I want submitting and getting feedback from the *Psi Chi Journal* to be a pleasant experience, even if we reject a manuscript. If you receive a rejection letter, it and the accompanying reviews will clearly provide reasons for the rejection. Ideally, the letter and reviews will also give suggestions for revising the manuscript so that it might fare better in another round of reviews. Realize, of course, that sometimes a manuscript might not be strong enough that a simple revision will suffice—sometimes reviewers will suggest that additional research with improvements would be necessary for a manuscript to be publishable. We *want* students to be able to publish in the journal, and we *want* them to publish the best possible manuscript that they can produce—that is why we spend the time that we do with each manuscript.

**My Review Process**
In addition to being educational and supportive in the review process, I also hope to be timely in responding to authors’ submissions. When I receive a manuscript submitted by a Psi Chi member (see www.psichi.org/pubs/journal/submissions.aspx for submission guidelines and the submission link), I send it to three reviewers who have expertise and interest in the topic area. I ask them to return a review of the manuscript within a month (reviewers are faculty members who have busy lives, of course!). Sometimes I will have to remind a reviewer, so it may be more than a month before I have all three reviews. When I have all three reviews, I can turn my
attention to the manuscript, assuming there are no older ones already waiting for me. So, all things considered, I endeavor to get a response back to an author within two months (three months at the outside). With the backlog that I inherited, I have been a little slower than my targeted goal.

My Direction for the Journal
I took over the reins of editing the journal in September from Dr. Martha Zlokovich, who is the Executive Director of Psi Chi. Martha had stepped into the breach on a temporary basis and did yeoman’s work in helping the journal recover from an emergency situation. Together, we have worked to reduce the backlog of manuscripts that had built up over a period of time. We apologize to any students or faculty who were affected by the situation that led to a backlog and extended periods of time waiting on manuscript reviews. Further, we will do our utmost to make sure that this situation is not repeated.

I have long admired and respected the Psi Chi Journal of Undergraduate Research and the people who founded and edited it. Now I have my chance to follow in their footsteps. As the journal enters its 15th year of publication, I hope that I can count on you—members and faculty sponsors of Psi Chi—to help me as we strive to return the journal to its leadership position in helping educate undergraduate psychology students.

My Advice for Faculty Mentors
1. According to the submission guidelines, the "mentor affirms that it is high-level work." Thus, it is not likely to be the case that faculty members should encourage all of their students to submit their manuscripts to the Psi Chi Journal of Undergraduate Research. However, I do hope that you will encourage your students with good research projects to submit them to the Psi Chi Journal. It is important to keep the submissions flowing in order to create a high-quality journal.

2. Faculty mentors must walk a tightrope with sponsoring submissions to the Psi Chi Journal. On one hand, in sponsoring the paper, they must attest "that the planning, execution, and writing of the manuscript represent primarily the work of the undergraduate student." However, the submission guidelines also ask mentors to attest that they have "read and critiqued the manuscript on content, method, APA style, grammar, and overall presentation," and faculty mentors are eligible for authorship credit on the paper. Thus, I encourage faculty to do their best job of editing the manuscript before the student submits it. As psychologists, we know how important external factors such as grammar, writing style, and adherence to APA format can be in establishing a reviewer’s “feel” for a submission.

3. Include your e-mail address so that I can send you a copy of the decision letter, reviews, and marked manuscript. Some of your most important mentoring may come in helping your student interpret a letter of rejection—there are likely to be important cues regarding resubmission that students might miss if they simply fixate on the rejection message.

My Advice for Student Authors
1. Strip your manuscript of any identifying information (e.g., title page, Method section, author note) so that I can send it out for blind review. Blind review ensures that reviewers treat all manuscripts equally, because there are no clues about the author or the author’s school.

2. Follow APA style as closely as possible. Despite having used APA style for more than three decades, I still keep my APA manual within arm’s reach when I write. It is a reference book, so it is not surprising if you don’t remember it all! You will find a presubmission checklist on pages 133-136 of this issue, but it simply focuses on APA style issues. You and your faculty mentor can bypass the need for a checklist simply by assuring that you have meticulously followed APA style guidelines. Beginning June 1, 2010, all manuscripts should follow the 6th edition of the APA style manual.

3. Your research project was based on previous research. For that reason, it is important to stress your new and original contribution to the psychological literature. Publishing a replication of a study that is already in the literature is typically not a good use of journal space, so it is your “job” to sell the reader on the new aspects of your research.

4. If you receive a rejection letter, it will probably disappoint you. However, after your initial disappointment, reread the letter carefully. Determine whether the letter gives you encouragement to revise and resubmit your manuscript. Pay attention to what the editor and reviewers are asking you to do before you resubmit the manuscript. Be sure to work with your faculty mentor on responding to reviewer comments and revising your manuscript. How well and how completely you respond to these prompts will go a long way toward determining whether your revised manuscript is likely to be accepted.
SPECIAL INVITED ARTICLE


KIRSTEN L. REWEY
ACET, Inc.

TINA L. VELASQUEZ
University of Wisconsin-Stout

The following checklist was developed to assist authors, faculty advisors, and reviewers in aligning manuscripts with the recent revision of the Publication Manual of the American Psychological Association (2010) and updates earlier versions of the checklist that appeared in the Psi Chi Journal of Undergraduate Research in Fall 2000 and Winter 2001. Items in the checklist were based on a review of formatting mistakes identified in manuscripts submitted to the Journal.

Author Note. Kirsten L. Rewey, ACET, Inc., Minneapolis, Minnesota; Tina Velasquez, Psychology Department, graduate student and Psi Chi member at University of Wisconsin-Stout.

Many thanks to everyone who contributed to checklists that were published in the Psi Chi Journal of Undergraduate Research for earlier editions of the APA Publication Manual, including Jennifer Dunn, Karen Ford, John A. Juve, Alyson Weiser, and Stephen F. Davis. We also thank our editors, Randolph Smith, Martha Zlokovitch, and Susan Iles, for their helpful guidance.

Send correspondence regarding this article to Kirsten Rewey, ACET, Inc., 9868 Lyndale Avenue South, Minneapolis, MN 55420. E-mail: kirsten@acetinc.com

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### GENERAL FORMATTING AND TYPING

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<th>I have read the manuscript and I know that:</th>
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<td>The manuscript is double-spaced throughout, including title page, author page, references, tables, figure captions, and appendixes.</td>
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### ABSTRACT

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## BODY OF THE MANUSCRIPT

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<td>“People first” language is used when describing persons with any type of condition or with varied ability levels (e.g., “patients diagnosed with lung cancer” not “cancer patients”; “persons with paranoid schizophrenia” not “paranoid schizophrenics”).</td>
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<td>The terms “girl” and “boy” describe participants 12 years of age and younger, “young man” and “young woman” and “female adolescent” and “male adolescent” describe individuals aged 13-17, and “man” and “woman” describe participants 18 years of age and older. Adults aged 65 years or more are referred to as “older adults.”</td>
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### TABLES AND FIGURES

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### Reference

Reducing Own-Age Bias: Does Contact Improve Young Adults’ Recognition of Older Faces?

The current study examined whether young adults’ own-age bias—better recognition for same-age faces than other-age faces—decreases after contact with older people. Recent evidence suggests that contact with other-race faces improves recognition memory for other-race faces (Sangrigoli, Pallier, Argenti, Ventureyra, & de Schonen, 2005). To extend this finding to the own-age bias, we tested 9 participants’ face recognition accuracy before and after they volunteered with older people and compared it to that of 8 participants who did not volunteer. Though all participants demonstrated own-age bias, interaction with older people did not reduce it. Alternative explanations for these findings are discussed.

The ability to accurately recognize human faces plays a vital role in our daily interactions with others. For example, distinguishing between friends and strangers or identifying criminal suspects relies on one’s memory for faces. Previous research has reported that individuals have an own-race bias (ORB) in face recognition: people display better recognition for faces of their own race than for cross-race faces. Although various research methodologies have been used, ORB is a robust effect (Levin, 2000; Meissner & Brigham, 2001; Sporer, 2001a).

Emerging evidence indicates that in addition to the ORB, an own-age bias (OAB) also affects face recognition abilities. Individuals tend to display better recognition for own-age faces than for faces outside of their age group (Anastasi & Rhodes, 2005, 2006; Bäckman, 1991; Fulton & Bartlett, 1991; Mason, 1986; Perfect & Harris, 2003; Perfect & Moon, 2001; Wright & Stroud, 2002). For instance, Bäckman (1991) demonstrated that young adults (19- to 27-year-olds) were better at recognizing younger than older faces, and older adults (63- to 70-year olds) displayed the opposite pattern. Interestingly, 76-year-olds and 85-year olds did not show an OAB. More recently, Anastasi and Rhodes (2005) found that children (5- to 8-year-olds) and older adults (55- to 89-year-olds) displayed an OAB. In addition, Anastasi and Rhodes (2006) reported an OAB for younger (18- to 25-year-olds), middle-aged (35- to 45-year-olds), and older (55- to 78-year-olds) participants.

Although research has demonstrated the existence of these biases, there is no consensus on what might moderate these effects. To explain the ORB, some researchers have posited that the amount of contact an individual has with other racial groups may affect recognition (Brigham & Malpass, 1985; Slone, Brigham, & Meissner, 2000). For example, studies showed that White children from integrated schools and neighborhoods showed a smaller cross-race recognition bias than children from nonintegrated schools and neighborhoods (Cross, Cross, & Daly, 1971; Feinman & Entwistle, 1976). Slone et al. (2000) found that White participants’ recognition accuracy for cross-race faces was positively correlated with their self-reported degree of contact with Blacks. More recently, Sangrigoli, Pallier, Argenti, Ventureyra, and de Schonen (2005) reported that individuals of Korean heritage who grew up in
Caucasian families recognized Caucasian faces better than Korean faces.

The contact hypothesis, however, has received mixed support as an explanation for the ORB (Meissner & Brigham, 2001). In some studies, the correlation between contact and cross-race recognition ability is weak or nonexistent (Brigham & Malpass, 1985). One study that compared the recognition skills of White and Asian students for White and Asian faces concluded that amount of cross-race contact did not influence the ORB (Ng & Lindsay, 1994).

Although the effect of contact on the ORB remains unclear, the contact hypothesis provides a possible explanation for the OAB. Perhaps young adults have less contact with older adults, which results in poorer memory for older faces. To date, no published study has attempted to investigate the effect of contact with older adults on the OAB. Thus, in the present study, we examined the effect of recent contact with older adults on young adults’ face recognition accuracy before and after participants completed a semester of volunteer work with older clients. We compared the recognition accuracy of these young adults to a group of young adults who did not work with older adults during the semester. During pre- and post-testing, we used the traditional two-phase face recognition paradigm often used to measure face recognition accuracy in studies of both the ORB and OAB. In this paradigm, participants are shown photographs of faces during an encoding phase. Then, during a recognition phase, participants view new and previously-viewed faces and indicate whether they had seen each face during encoding (Sporer, 2001a). We hypothesized that all young adults would display an OAB. More importantly, we predicted that recognition accuracy for older faces would improve from pre- to post-testing, but only for those young adults who volunteered with older adults.

**Method**

**Participants**

Seventeen 19- to 21-year-olds (M age = 19.59; 1 man), recruited from Gerontology (n = 9) and Abnormal Psychology (n = 8) courses at a small private college in the northeastern U.S., participated. The experimental group consisted of 9 students (3 from Gerontology and 6 from Abnormal Psychology) who volunteered with older people for an average of 3.44 hours per week (SD = 2.55) for 14 weeks; the control group consisted of 8 students (5 from Gerontology and 3 from Abnormal Psychology) who did not work with older people and opted to write a paper instead. Students were given this option by their course instructor. All participants self-identified as White; most were first- or second-year students.

**Materials**

We created two PowerPoint slideshows, Test A and Test B, with photographs of different younger (16- to 29-year-old) and older (65- to 85-year-old) target faces. We selected photographs from the Productive Face Lab Database (Minear & Park, 2004) so that participants would not recognize any of the people depicted. Photographs consisted of individuals’ heads and shoulders in front of a neutral gray background. The individuals had minimal or no make-up, jewelry, bright clothing, or prominent features. All photographs depicted White faces to avoid a cross-race effect.

Tests A and B each consisted of encoding and recognition phases. The encoding presentations consisted of 20 forward-facing faces: 10 each from the younger and older target ages. Half of the faces were men and half were women. Faces were randomly ordered, except that no more than three faces in a row were of the same target age group or gender. The recognition presentations consisted of 40 right-facing faces. Half of the faces were of individuals shown during encoding and half were foils. We randomly ordered faces with the constraint that no more than three in a row were of the same gender or age group. In addition, no more than three in a row were familiar faces (i.e., faces shown during encoding). We showed right-facing profiles during recognition instead of the same forward-facing photographs used in encoding to ensure that participants recognized the face depicted during encoding and not a clue (such as a smudge mark) within the photograph itself. Researchers have argued that this technique more precisely measures face recognition rather than stimulus recognition (Sporer, 2001a).

To ascertain the extent of the experimental groups’ volunteer experience during the semester and to help assess potentially confounding variables, we also administered two surveys: one after the pre-test and one after the post-test. Through a number of open-ended questions, the pre-test survey asked participants to: (a) describe any previous volunteering or work with older adults, (b) estimate how many hours per week they previously worked or volunteered with older adults, (c) indicate whether they planned to participate in a volunteering experience during the coming semester, and (d) estimate the number of waking hours they spent with people of various age groups, including older adults. Participants were asked to circle the age group with which they spent the most time.

The post-test survey asked participants to: (a) identify whether they had completed a volunteer experience during the semester and where they had completed it, (b) estimate how many hours per week they volunteered, (c) identify the age groups with whom they had
worked, (d) rate their overall volunteer experience on a scale from 1 (very negative) to 10 (very positive), and (e) rate how much they enjoyed working with the identified age groups on a scale of 1 (very negative) to 10 (very positive). There was also space for participants to include comments about their experience. Participants were included in the experimental group if they indicated that they had completed a semester-long volunteer experience with adults in the 65 and older age group on the post-test survey.

Procedure
We tested face recognition accuracy at the beginning and end of the 14-week period. We randomly assigned 9 participants to view Test A as their pre-test and Test B as their post-test, while the remaining participants first viewed B and then A.

Procedures were the same for pre- and post-testing. We tested participants in groups of no more than 6, and they watched the presentations on a large projection screen. During encoding, we instructed participants to examine each face carefully, estimate the age of the individual, and attempt to remember the face. The presentation showed each face for 5 s followed by a blank white screen for 5 s. The recognition phase immediately followed encoding. During recognition, we instructed participants to identify whether each face was “familiar” or “new” on their answer sheet. As in encoding, each recognition face was shown for 5 s followed by a white screen for 5 s. We did not tell participants that half of the faces were new and half were familiar. After recognition, participants completed the appropriate survey. Each pre- and post-test session took about 30 min and participants received gift certificates for their participation.

Results
Pre- and Post-Test Survey Data
Pre-test survey. We used the pre-test survey data to assess the participants’ previous experiences with older adults. An independent samples t test on participants’ previous volunteer or work experience with older adults revealed no significant difference between the experimental and control groups, t(15) = 1.33, p > .05. On average, control group participants had previously worked with older adults for 2.63 hours per week (SD = 2.93), and experimental group participants, averaged 1.17 hours of previous experience per week (SD = 1.41). An independent samples t test on the amount of time spent with older adults showed no significant difference between groups, t(15) = 1.75, p > .05. Participants in the control group estimated that they spent an average of 3.38 hours per week (SD = 2.92) with older adults. All participants indicated that they spent the most time with 18- to 29-year-olds.

Post-test survey. The 9 participants in the experimental group rated their overall volunteer experience positively (M = 7.56, SD = 1.33). They also reported that they enjoyed working with adults aged 65 and older (M = 7.44, SD = 0.50), although some commented that they “preferred working with kids” or found it “difficult to know what to say” when conversing with older people.

Recognition Accuracy
To examine recognition accuracy, we used methods suggested by signal detection theory (Stanislaw & Todorov, 1999). We first counted participants’ hits (i.e., the number of correctly identified targets) and false alarms (i.e., number of distracters participants labeled as “familiar.”) We then used these two scores to calculate d’, a measure of overall accuracy.

We conducted a 2 (target age: younger vs. older) x 2 (test: pre vs. post) x 2 (contact: contact with older people vs. no contact) mixed-factors analysis of variance (ANOVA). As predicted, the main effect of target age was significant, F(1, 15) = 5.29, p < .05. Participants more accurately recognized younger faces (M = 1.51, SD = 0.69) than older faces (M = 1.10, SD = 0.57; see Figure 1). However, contrary to our hypothesis, the main effect of contact was not significant. Participants who had contact with older people (M = 1.33, SD = 0.61) did not differ significantly from those who did not have contact (M = 1.28, SD = 0.66). Moreover, the
main effect of test type was not significant. Participants did not perform significantly better on the post-test ($M = 1.35, SD = 0.63$) than on the pre-test ($M = 1.26, SD = 0.61$).

Most importantly, the ANOVA did not reveal any statistically significant interactions. The main pattern in the data indicates that participants displayed an OAB during both pre- and post-testing, regardless of their level of contact with older people.

**Discussion**

Overall, our data are consistent with past research on the OAB; participants exhibited an OAB in face recognition (Anastasi & Rhodes, 2005, 2006; Bäckman, 1991; Fulton & Bartlett, 1991; Mason, 1986; Perfect & Harris, 2003; Perfect & Moon, 2001; Wright & Stroud, 2002). However, we found no support for the contact hypothesis; participants who volunteered with older people did not subsequently display better recognition accuracy for older faces. We also did not find a practice effect. Participants’ scores did not significantly improve from pre- to post-testing.

These results are perhaps not surprising, as research on the ORB has also found only mixed support for the contact hypothesis. While some researchers found a correlation between contact and cross-race face recognition ability (Byatt & Rhodes, 1998; Slone et al., 2000), others did not find a significant effect (Brigham & Malpass, 1985; Ng & Lindsay, 1994). Moreover, a recent meta-analysis of studies of the own-race bias concluded that only 2% of the variance in cross-race recognition ability was due to differences in levels of interracial contact (Meissner & Brigham, 2001).

Although the contact hypothesis makes intuitive sense, other theories may better explain the OAB. For instance, Levin (2000) proposed a feature-selection model that emphasizes the tendency to quickly categorize faces into an in- or out-group. The feature-selection model hypothesizes that individuals think categorically about out-group members, focusing on social categories such as age, sex, and race, while individuating in-group members by focusing on their individual and unique features. Encoding these unique features rather than categorical features improves recognition of in-group faces. The results of several studies have supported Levin’s (2000) model, suggesting that the ORB is caused by people encoding in-group and out-group faces differently (e.g., Hugenberg, Miller, & Claypool, 2007). In the current study, despite interacting with older people, our participants likely still categorized their faces as belonging to an out-group, which may have led them to use less efficient processing methods to encode older faces.

Our study had a few limitations. First, we did not randomly assign participants to the experimental and control groups. Although we found that the groups did not significantly differ in terms of previous amount of time spent with older adults, differences could exist between the two groups on other relevant variables such as memory abilities or attitudes towards older adults. Second, we tested only 17 participants, and just one of them was male. Although we did not find support for the contact hypothesis, a larger sample size may be necessary to detect an effect of contact. Third, our use of forward-facing photographs during encoding and right-facing photographs during recognition may help tease apart the differences between stimulus recognition and face recognition (Sporer, 2001a) but may also have decreased participants’ overall recognition abilities (Sporer, 1994). Finally, our participants may not have worked with older people for enough time to reduce their OAB. On average, the participants worked for 3.5 hours per week for 14 weeks. In addition, the quality of the participants’ contact with older adults may be an issue. Both Brigham and Malpass (1985) and Sporer (2001b) have theorized that contact needs to be positive in order to reduce the cross-race bias.

To attempt to address some of these limitations, future studies could use larger and more gender-balanced samples that have more contact with older adults. Research could also focus on operationally defining and examining the influence of positive versus negative contact on the OAB. Additionally, researchers could randomly assign participants to experimental and control groups and control their exposure to older adults’ faces in the laboratory setting.

In conclusion, our results show that the age of the face should be considered when analyzing face recognition ability. Knowledge of bias effects is imperative for people who evaluate and rely on eyewitness memory to solve crimes. Although we found no support for the contact hypothesis, our work may encourage others to examine the underlying mechanisms for the OAB.

**References**


Contact With Older Adults and Face Recognition

LeDonne, Poirier, and Craton


Speech perception has been defined as the process by which people are able to interpret, understand, and give meaning to what are otherwise meaningless speech sounds (Massaro, 2001). Understanding how speech perception occurs is an important aspect of helping us understand how mental processes operate in terms of human linguistic ability.

Categorical perception is a theory that can be used to explain perceptual phenomena such as speech perception. Liberman, Harris, Hoffman, and Griffith (1957) conducted a study in which they generated speech sounds and varied them in small steps along a continuum, so their participants heard a continuous stream of speech sounds that gradually transitioned from “ba” to “da” to “ga.” When they were asked to identify the sounds that they heard, the results showed that they tended to group the sounds into discrete categories even though the sounds were being varied on a continuum. They reported hearing “ba’s,” “da’s,” and “ga’s” but nothing else during the transition from one syllable to the next. Based on these results, Liberman et al. proposed that speech is perceived categorically.

The motor theory of speech perception attempts to provide an explanation of why people perceive abrupt changes when listening to a continuum. According to this theory, there is a portion of the brain that takes into account the relevant speech information, such as visual and auditory cues, and it forms a hypothesis about what the intended speech sound is (Saldaña & Rosenblum, 1993). The theory proposes speech perception involves the speech motor system and is influenced by the way speech sounds are produced when people speak (Galantucci, Fowler, & Turvey, 2006). When people hear the sounds on a continuum, they perceive the sounds by trying to match them with what they have to do in order to produce the sounds themselves.

Speech perception is usually thought of as strictly an auditory process because verbal communication among people is regarded as listeners hearing and comprehending the words of a speaker. However, studies have demonstrated that speech perception is...
actually a multimodal process that can be influenced by visual processing as well as auditory processing. This means that what we see can affect what we hear. McGurk and MacDonald (1976) demonstrated that when stimuli people see and hear do not match, they tend to report a new sound by either fusing or combining the two sounds. This tendency is known as the McGurk effect.

McGurk and MacDonald (1976) presented participants with videos in which one speech sound ("ba") had been dubbed onto a video where a woman was moving her lips to another speech sound ("ga"). They found that there are two kinds of responses participants give when there is a discrepancy between the audiovisual stimuli. First, the responses can be a fusion of the two sounds. A fused response is when the discrepant information that is seen and heard is transformed into a new item. For example, when an auditory "ba" is paired with a visual "ga," people fuse the two syllables together and hear a new syllable—"da." The second type of response is called a combination. Combination responses occur when the information from the two modalities are joined together. This happens when people are presented with a visual "ba" paired with an auditory "ga." Under these circumstances, people report they hear "baga" or "gaba." McGurk and MacDonald did not give an explanation as to why there are two different kinds of responses. They discovered that this effect can occur even when the person is aware of the illusion because even with a lot of practice, habituation does not occur. When a person is looking at the screen, the visual "ga" and auditory "ba" will produce a "da" perception. However, when the person closes his or her eyes, which removes the visual information, the same condition will produce a perception of "ba."

Burnham and Dodd (2004) conducted a study to examine whether infants were susceptible to the McGurk effect. Instead of using a videotape to present the stimuli, they created a real-time demonstration because they believed that infants would be more attentive to a real person. They did so by having a person mime to a pre-recorded audio. There were two phases in this study. First, there was a familiarization phase during which the infants in the experimental group were familiarized with a visual "ga" (a person mouthing "ga") and auditory "ba." This pairing should produce the perception of "da" or "tha," which is the McGurk effect. Infants in the control group were familiarized with a visual "ba" and auditory "ba." The familiarization phase ended when the infants' 15 familiarization trials had been presented. Immediately after the familiarization phase was the testing phase. During the testing phase, infants were presented with just auditory stimuli: "ba," "da," and "tha." These three auditory stimuli were presented one at a time. The mime was still present when the auditory stimuli were presented, but no miming occurred (the mime's face remained motionless). The researchers measured visual fixation duration for each of the auditory stimuli during the testing phase. They expected that infants would fixate longer on the mime's face when they heard the auditory stimulus that was most similar to the stimulus they had heard during the familiarization trial. The results showed that infants in the experimental group fixated on the mime's face longer when an audio "da" or "tha" was presented than when "ba" was presented. This provided support for the expectation that during the familiarization phase, infants perceived a "da" or "tha" sound. In other words, infants perceived the McGurk effect.

Audiovisual interaction can also occur in complex and contextual scenes. In a study by Wright and Wareham (2005), participants were shown a video of a man following a woman. The video showed the man mouthing "He's got your boot" paired with an audio of "He's gonna shoot" or vice versa. Participants were asked to report what they heard. The results indicate that when the audiovisual stimuli did not match, participants made mistakes and many of them reported hearing the fusion: "He's got your shoe." This study had more ecological validity than previous studies on the McGurk effect because in our everyday lives, we do not hear sounds in isolation. The video of a complex scene can be more comparable to the real world.

Although the McGurk effect has been found consistently, there are times when the effect is weak. McGurk and MacDonald (1976) found that the effect works better with some consonant combinations than others. During their study, they used "ba/ga" and "pa/ka" combinations. However, they found that a "ba/ga" combination produced a stronger McGurk effect than "pa/ka" combinations. However, they gave no explanation for why this was the case. The McGurk effect is also less pronounced when nonspeech stimuli are used (Saldaña & Rosenblum, 1993). Researchers created a video in which plucks and bows on a cello served as the stimuli. Visual plucks and bows were paired with audios from plucks and bows. The sounds of the plucks and bows were played on an auditory continuum. After the video was shown, participants judged what the audio sounded like: pluck, bow, or ambiguous. Participants made these judgments by moving a vertical slash along a horizontal line on a computer screen. Participants moved the slash all the way to the right if they thought the audio sounded like a clear bow and all the way to the left if they thought the audio sounded like a clear pluck. They placed the slash in the middle if the sound was ambiguous (when they couldn't tell whether it was a bow or a pluck). The results showed that the video
information had an impact on the auditory pluck and bow judgments, even when participants were told to make judgments based only on what they heard. This seems to be consistent with McGurk findings using speech stimuli; however, the nonspeech stimuli did not produce a strong McGurk-like effect. According to Saldària and Rosenblum, “the visual influence can make a clearly defined syllable of one type sound like a clearly defined syllable of another” (p. 409) when there is a strong McGurk effect. However, visual influence cannot make a clear pluck sound like a clear bow or a clear bow sound like a clear pluck. This finding suggests that the McGurk effect is stronger with speech stimuli than nonspeech stimuli.

Familiarity with the speaker (visual stimuli) is another factor that can lead to a less-pronounced McGurk effect (Walker, Bruce, & O’Malley, 1995). Walker, et. al used videos that consisted of incongruent pairings (auditory and visual stimuli were different): an auditory “ba” paired with a visual “ga” (this is a McGurk pairing that produces “da”), an auditory “ga” paired with a visual “ba,” an auditory “bi” paired with a visual “gi,” and an auditory “gi” paired with a visual “bi.” They used congruent pairings in which the auditory and visual stimuli were the same (e.g., auditory “ba” paired with visual “ba”). The researchers placed participants into two conditions: those who were familiar with the speaker in the video and those who were not familiar with the speaker. Pairings were presented one at a time, and participants said aloud what they heard the speaker say. When those who were familiar with the speaker were presented with the auditory “ba”/visual “ga” pairing (the McGurk pairing that produces “da”), participants reported fewer “da” responses than those who were unfamiliar with the speaker. When they did not report a fusion (McGurk response) between the two stimuli, the subjects were also more likely to report what they heard rather than what they saw. These findings suggest that people who are familiar with the speaker are less susceptible to the McGurk effect than those who are unfamiliar with the speaker.

Walker, et. al (1995) argued that being familiar with a speaker makes listeners less susceptible to the McGurk effect because familiarity provides knowledge of that person’s facial movements. When there is a discrepancy between the audio and visual stimuli, their expectations are not met. They do not hear what they thought they were going to hear. When the audio and visual stimuli of the familiar person do not match, people do not fuse the two stimuli together like people do when they are listening to an unfamiliar person. So instead of hearing “da”, they hear “ba.” The visual stimulus doesn’t affect what they hear.

Another factor that can affect the strength of the McGurk effect is the degree of synchrony between the audio and visual stimuli. Synchrony refers to the simultaneous occurrence of the audio and visual stimuli. Munhall, Gribble, Sacco, and Ward (1996) tested synchrony between audio and visual stimuli by manipulating the audio and having it either follow the visual stimulus or lead it. The participants were shown a video of a woman mouthing “igi” and “aga” paired with an audio of “aba.” The timing of the auditory stimuli varied in 60 ms increments from 360 ms prior to synchrony to 360 ms after synchrony. Participants reported what they heard by pressing one of the four labeled keys on the keyboard—B, D, G, and O. The letters B, D, and G represented the sounds they might hear (for instance, D means that the sound “di” or “da” was heard), and O stood for “other.” Munhall, et al. found that people perceived the McGurk effect more often when the audio stimuli followed the visual stimuli than vice versa. Participants reliably perceived the effect when the two stimuli were not in synchrony as long as the delay did not go over a 180 ms lag. After 180 ms, the effect weakened and was not usually perceived.

In the present study, I combined the factors of familiarity and synchrony into one study to examine their influence on the McGurk effect. Familiarity was manipulated so that there was a familiar and unfamiliar condition, and synchrony was manipulated so that the audio was either in synchrony, delayed by 90 ms, or delayed by 180 ms. I predicted that when the audio and visual stimuli were in synchrony, the McGurk effect would be strongly demonstrated by everyone in the unfamiliar condition and not as strongly for those in the familiar condition. Also, I expected that there would be a significantly less-pronounced McGurk effect for those in the familiar condition as the audio delay increased, but for the unfamiliar condition, the effect should occur as long as the delay does not exceed 180 ms.

Method

Participants
Participants were 77 undergraduate students taking an introduction to psychology course at a small southern university. All participants had normal or corrected vision and hearing. Participants were volunteers who received course credit for their participation.

Materials
A Sony Handycam DCR-DVD405 video camera was used to record the visual stimuli. For the familiar condition, the recordings were made using two professors who taught introduction to psychology during the semester that the experiment was conducted. For the unfamiliar condition, the recordings were made using two professors at another southern institution.
All four professors were male and were videotaped saying three speech sounds: “ga,” “ga,” and “ba” (“ga” was repeated twice because it was paired with “ba” and “ka”). After the experimenter pressed the “record” button on the camera, the professors waited 5 s before they said the first sound—“ga.” After another 5 s, they said the second sound—“ga,” and then after another 5 s they said the third sound—“ba.” The researcher kept track of the time and provided the professors with an auditory cue (finger snap), which signaled when they should say each sound. This allowed the professors to keep their focus on the camera instead of looking at a timer. After the videos were made, they were transferred to the computer (MacBook Pro running Mac OS X v10.4.11). Using iMovie HD, the researcher removed the sound on the video, which allowed her to later add in discrepant auditory stimuli.

The iMovie HD program was also used to record the auditory stimuli. All professors were recorded saying three speech sounds: “ba,” “ka,” and “pa.” Once again, each sound was spaced apart by 5 s; however, no auditory cue was given. The program has a feature that shows how much time has elapsed after the record button is pressed so the professors were able to tell when 5 s had passed. After all the audio recordings were made, I dubbed all professors’ corresponding audio recordings onto their video recordings. This procedure led to the production of a continuous video stream that consisted of three different audio and visual pairings: “ba/ga,” “ka/ga,” and “pa/ba” (the “ba/ga” pairing being the McGurk effect pairing that produces the “da” response; the “ka/ga” and “pa/ba” pairings were filler pairings—pairings that were used to create variety but have not been found to produce the McGurk effect). The video stream was then cut in order to create three separate videos that would vary by synchrony. The audio in these videos was manipulated so that in one video the audio played in synchrony with the visual lip movements, in the second video the audio followed the visual lip movements by 90 ms, and in the third video the audio followed the visual lip movements by 180 ms.

The participants viewed the recordings on a computer screen (a Dell desktop computer running Windows XP). A video camera was used to record each experimental session.

**Design**

A 2 (Familiarity) X 3 (Synchrony) between subjects factorial design was used to assess the influence of familiarity and synchrony on the McGurk effect.

**Procedure**

All participants were tested individually and randomly assigned to 1 of the 6 conditions. They were instructed to watch and listen to the video recordings. Each of the three pairings was randomly presented four times for a total of 12 presentations. After each presentation, participants were asked to give 2 responses. First, participants reported what they heard verbally. Then, a multiple-choice list appeared on the computer screen, which asked them to click on the answer they heard. The choices on the list consisted of “ka,” “pa,” “ba,” “da,” “ga,” and “other.” A “da” perception indicated the McGurk effect. A videotape of the sessions allowed me to confirm auditory responses.

**Results**

The measure of the McGurk effect was a proportion score that divided the number of “da” responses for the “ba/ga” pairing by the total number of trials (four). The higher the proportion of scores for “da” responses, the stronger the McGurk effect (see Table 1 for means). A 2 x 3 (Familiarity x Synchrony) between subjects ANOVA was conducted and the results showed that there was a main effect for synchrony, $F(2, 71) = 8.47$, $p = .001$, partial $\eta^2 = .19$. The main effect for familiarity approached significance, $F(1, 71) = 3.85$, $p = .05$, partial $\eta^2 = .05$.

Post hoc analysis for the main effect of synchrony revealed that the simultaneous condition ($M = .28$, $SD = .40$) showed more McGurk-consistent responses than the 90-ms-delay condition ($M = .04$, $SD = .16$). There was also a significant difference between the simultaneous condition and the 180-ms-delay condition ($M = 0$, $SD = 0$), where again the simultaneous condition showed more McGurk-consistent responses than the delay. There was no significant difference between the 90 ms delay and the 180 ms delay. Another post hoc test showed that the means of the simultaneous conditions were not significantly different.

**TABLE 1**

<table>
<thead>
<tr>
<th>Familiarity</th>
<th>Synchrony</th>
<th>N</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
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<td>.39</td>
<td>.47</td>
</tr>
<tr>
<td></td>
<td>90 ms delay</td>
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<td></td>
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<td>0</td>
</tr>
<tr>
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<td>.13</td>
<td>.24</td>
</tr>
<tr>
<td></td>
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<td>0</td>
</tr>
<tr>
<td></td>
<td>180 ms delay</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Discussion

The purpose of this study was to investigate whether familiarity with a speaker and synchrony of the audio and visual stimuli influence the McGurk effect. The results show that the McGurk effect was perceived most often when the audio and visual stimuli were presented in synchrony, rather than when the audio followed the visual information, regardless of familiarity. These results did not confirm my original hypothesis. Based on the results of a study by Munhall, et al. (1996), I predicted that those in the unfamiliar condition should have perceived the McGurk effect even when the audio followed the visual information by up to 180 ms.

My results suggest that there is no effect for familiarity; however, this finding is not consistent with findings from previous research. Walker et al. (1995) found that participants who watched a video of an unfamiliar person perceived the McGurk effect more often than those who watched a video of a familiar person. Although there was a main effect for synchrony, the results did not provide support for previous research that found that the McGurk effect could be perceived even with an audio delay as long as 180 ms (Munhall, et al., 1996).

A possible explanation for why my results were inconsistent with the previous findings is the fact that I recorded two types of responses—one verbal and one via mouse clicks. Having participants give two responses may have made them think harder and process the information more slowly and more thoroughly, eliminating the familiarity effect. Walker et al. (1995) only asked their participants to say what they heard aloud, while Munhall et al. (1996) only had their participants make keyboard presses to indicate their responses. For this study, I decided to have my participants make two responses hoping that it would ensure better accuracy. However, by asking for two types of responses, I may have accidentally created an artificial situation in which the results cannot be generalized to the real world. In our everyday lives, we usually do not repeat what we hear, we just respond to what we thought we heard.

Thorough processing of the audio and visual stimuli may also explain why the McGurk effect was not perceived when the audio was delayed. By taking more time to process the information due to giving two kinds responses, participants might have lost the McGurk effect because of the audio delay. Reducing processing time may have weakened the McGurk effect. However, the reason that the McGurk effect was not lost when the stimuli were played in synchrony could be because this is the condition where the effect is the strongest; the more thorough processing does not affect the participants’ perception of it.

Evidence produced as a result of investigating the McGurk effect has suggested that the integration and processing of the audio and visual stimuli occurs before the information goes to the lexicon (a mental dictionary that gives meaning to speech input); therefore, the processing of audio and visual information occurs early and at a prelexical stage (letter combination sounds are processed through the lexicon even though they are not eventually recognized as words; Schwartz, Berthommier, & Savariaux, 2004). This notion suggests that participants give a response based on what they heard and saw before any meaning is placed on the information. However, according to my results, when there is an audio delay and when participants must give two kinds of responses, the McGurk effect disappears. My results suggest that not all information processing occurs at the prelexical stage. The time that it takes for participants to coordinate two responses eliminates the perception of the McGurk effect; therefore, the two responses must be a result of post-lexical processing. If all the processing for the McGurk effect occurs prelexically, then the McGurk effect should still occur even when there is an audio delay. Overall, my findings suggest that the McGurk effect has a prelexical component but it is also dependent on further processing, so we cannot assume that all of the information processing for the McGurk effect occurs in the prelexical stage. However, more research must be done in order to determine what exactly happens during the prelexical and post-lexical stages.

In conclusion, the results of this study show that the McGurk effect in its original form is a fairly robust phenomenon, but one that can be eliminated. I believe the effect was lost in the present study because of the change in how responses were recorded. Future research should systematically vary response styles to determine if my conclusion is correct. Even so, this research has important theoretical implications in terms of when the interpretation of auditory and visual stimuli occurs in the perceptual system. Future research should be directed at producing a clearer picture of the prelexical perceptual process.

References


Happy People Don’t Follow the Stereotype: The Impact of Mood on Stereotyping

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Research has revealed that positive mood contributes to both broadened (i.e., more inclusive) categorizations and to increased reliance on heuristics (e.g., stereotypes). Bodenhausen, Mussweiler, Gabriel, and Moreno (2001) explained this equivocal research in light of four stages at which stereotyping can occur. The current study tests the first two of these four stages: stereotype categorization and activation, in the context of racial stereotyping. The study did not replicate findings of previous research that positive mood influences reliance on heuristics and broadened categorization. However, a relationship between category and race emerged, indicating that across mood conditions, participants rated European-Americans higher than African-Americans for likelihood of being in the category politician. In addition, participants rated a higher proportion of European-American than African-American names as politicians and a higher proportion of African-American names than European-American names as criminals. Results are discussed in terms of the nature of the stimuli, the mood induction procedures, and how this study fits with the stages of stereotyping.

Stereotypes are one example of a heuristic, or cognitive shortcut, that people activate for a variety of reasons. Stereotyping can be defined as “beliefs about the characteristics, attributions, and behaviors of certain groups” (Hilton & von Hippel, 1996, p. 238). Engaging in stereotyping may have many negative outcomes, one of which is discrimination. Part of understanding the problem of stereotyping involves understanding the underlying factors that may increase an individual’s likelihood of engaging in stereotyping. One factor that may contribute to activation of stereotyping is mood.

Negative Emotion
Emotion researchers have found that negative emotion narrows an individual’s focus to a specific action (i.e., fight or flight; Bradley, Codispoti, Cuthbert, & Lang, 2001). This function of negative emotion allows individuals to adapt to problematic environments. In this sense, negative emotion alerts people to problems in the environment that are in need of a solution, and the narrowing effect of negative emotion allows them to focus and solve the problem (Fredrickson & Branigan, 2005).

Congruent with this function of negative emotion, stereotype use may be affected by negative emotion in one of two ways. First, if individuals in negative moods process information about other people analytically (Derryberry & Tucker, 1994) they might demonstrate a decrease in stereotype use because they notice the individuating and detail-oriented characteristics that distinguish individuals, rather than labeling individuals using the characteristics attributed to the entire group of

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people. However, people in negative mood states might demonstrate an increase in stereotyping if they attribute their negative state to a problem in the environment (e.g., another person) and categorize that individual as part of the problem (Esses & Zanna, 1995).

**Positive Emotion**

Original models of emotion that conceptualized the function of mood as narrowing an individual’s focus and eliciting specific actions did not easily apply to positive emotion. Fredrickson (1998, 2001) proposed the broaden-and-build model of positive emotions, which suggests that experiencing positive moods broadens an individual’s thoughts about potential actions and increases engagement in the environment. During this time in which individuals are free from harm, they can build their reserve of skills and social relationships, which can be drawn upon in future times of need.

The broaden-and-build model has garnered much support in research literature. For example, positive emotions may influence several outcomes including increased creativity (Isen, Daubman & Nowicki, 1987) and a global bias on visual processing tasks. Such a bias has been linked to broadened cognition, which involves thoughts about potential actions as well as visual processing (Fredrickson & Branigan, 2005; Gasper & Clore, 2002). On one visual processing task, participants rated shapes based on their global (i.e., the larger shape presented) or local (i.e., smaller shapes comprising the larger figure) elements, which gave insight into the participants’ global or local biases (Fredrickson & Branigan, 2005). In addition, research on the own-race bias in facial processing has suggested that people have a difficult time recognizing and processing other-race faces due to local (feature-by-feature) processing; however, experiencing positive emotion eliminates this bias via global processing of faces (Johnson & Fredrickson, 2005). In other words, when individuals are in positive moods, they process faces holistically, increasing recognition and distinction of other-race faces. Positive mood is also linked with long-term successful outcomes, such as higher salaries, better health, and more satisfying social relationships (Lyubomirsky, King, & Diener, 2005).

Although benefits of positive mood have been demonstrated, research conducted on the precise role of positive mood in stereotyping has been equivocal. Some research suggests that positive mood may contribute to the elimination of stereotyping (Dovidio, Gaertner, Isen, & Lowrance, 1995; Isen & Daubman, 1984; Isen, Niedenthal, & Cantor, 1992; Johnson & Fredrickson, 2005), while other research suggests that positive mood increases an individual’s likelihood of stereotyping (Bless, et al., 1996; Bodenhausen, Kramer, & Sussser, 1994; Park & Banaji, 2000). The equivocal nature of this research is described in greater detail below.

**Positive affect and inclusiveness.** Research suggesting that positive mood may eliminate stereotyping has primarily focused on the impact of mood on categorization (Dovidio et al., 1995; Isen & Daubman, 1984; Isen et al., 1992). These studies demonstrated that individuals induced into positive moods were more likely to use inclusive categorization in a word-rating task (Isen & Daubman, 1984), in the evaluation of individuals as members of the participant’s in-group or out-group (Dovidio et al., 1995), and in social categorization (Isen et al., 1992).

Isen et al. (1992) demonstrated that individuals in positive moods use broadened categorizations for positive but not negative categories. In their study, participants were given strong and weak examples of positive (e.g., nurturant) and negative (e.g., emotionally unstable) person categories and were instructed to rate how well the exemplars fit those categories. Interestingly, participants induced into positive moods demonstrated more inclusive categorization only for the positive category and not the negative. This finding that individuals in positive moods demonstrated more inclusive categorization in some cases but not others demonstrates that more inclusive categorization is not simply a result of reliance on heuristics and careless thinking. If that were the case, then individuals in positive moods would demonstrate more inclusive categorizations across situations. The role that positive mood plays in increasing the inclusiveness of categorizations suggests that mood might reduce an individual’s stereotyping, thereby shifting focus to mood-congruent characteristics. However, these studies did not look directly at racial stereotyping.

**Positive affect and heuristic thinking.** Evidence also exists suggesting that positive mood may increase an individual’s likelihood of engaging in stereotyping (Bless et al., 1996; Bodenhausen et al., 1994; Park & Banaji, 2000). According to Bless et al.’s (1996) mood-and-general-knowledge model, individuals in positive mood states are more likely to rely on general knowledge structures, such as heuristics and stereotypes, when the environment is characterized as benign and unproblematic. The tendency to rely on heuristics in positive mood states has been linked with the use of an experiential or irrational system in information processing (e.g., increased superstitious beliefs; King, Burton, Hicks, & Drigotas, 2007), whereby individuals processed information broadly and heuristically and were more susceptible to sympathetic magic (i.e., superstitions) and more likely to hold paranormal beliefs. In addition, Bodenhausen et al. (1994) found that individuals induced into positive moods were more likely to engage
in stereotyping in social judgments (e.g., judging a “well-known” track-and-field athlete on campus as guilty of an honor violation).

Park and Banaji (2000) suggested that individuals in positive moods were more likely to use stereotypes in judging whether an individual was a criminal or a politician, demonstrating a bias in their judgments. This bias occurs when individuals think members of a particular group are more likely to hold certain positions (e.g., African-Americans as basketball players) based on racial stereotypes. Park and Banaji (2000) gave participants three lists of names (one for each category) containing a combination of stereotypical African-American and European-American names, and asked whether that person was a basketball player or not, a politician or not, or a criminal or not. In comparison to individuals induced into neutral moods, participants induced into positive moods rated a higher percentage of African-Americans than European-Americans as basketball players and criminals and also rated a higher percentage of European-Americans than African-Americans as politicians.

Explanations of Equivocal Literature
Researchers have provided many explanations for the relationship between mood and engagement in stereotyping including: the mood-and-general-knowledge model (Bless et al., 1996), accountability (Bodenhausen et al., 1994), and stages of stereotyping (Bodenhausen et al., 2001; Gilbert & Hixon, 1991). The mood-and-general knowledge model suggests that a positive mood signifies that all is well in the environment and there is no need to expend cognitive energy on evaluating details, making individuals in positive moods more likely to rely on heuristics. This theory does not explain the discrepancies that exist in the literature suggesting that positive affect leads to both more inclusive categorization for some stimuli, and increases in stereotyping for others. However, Bodenhausen et al. (1994) suggested that individuals in positive moods cease to rely on heuristics and stereotypes when they are held accountable for their judgments. Thus, Bodenhausen et al. suggest a possible explanation for why individuals in positive moods may engage in stereotyping in some instances and not others, namely that accountability overrides stereotyping. However, it does not explain why individuals in positive moods use more inclusive categorizations in a word-rating task when accountability is not a factor.

Finally, Bodenhausen et al. (2001) reviewed conflicting findings on mood and stereotyping in light of multiple stages at which stereotyping can occur. As such, they expanded on previous findings (Gilbert & Hixon, 1991) and identified four stages of stereotyping: category identification, stereotype activation, stereotype application, and stereotype correction. These stages provide the framework for understanding the equivocal nature of the literature because mood has a differential impact at different levels of stereotyping.

The category identification stage is characterized by “assigning a stimulus person to a social category” (Bodenhausen et al., 2001, p. 4). The category-identification stage uses vertical and horizontal dimensions to assign persons to categories. Along the vertical dimension, categories are hierarchical and become increasingly inclusive (e.g., “Black Intellectual,” “African-American,” “American,” and “Human Being.” Bodenhausen et al., 2001, p. 4). Along the horizontal dimension, categories are distinct and have similar levels of inclusiveness (e.g., “Woman,” “Jew,” “Middle-Aged,” and “Professor.” Bodenhausen et al., 2001, p. 4). These researchers suggested that affect plays little role in influencing horizontal categorizations, but it may play a larger role in vertical categorization, leading individuals in positive moods to embrace broader categorizations. So at the category identification stage, this theory would suggest that positive mood seems to be beneficial in decreasing stereotyping.

According to Bodenhausen et al. (2001) mood plays a somewhat different role in the remaining stages of stereotype activation, application, and correction. These stages are characterized by the “mental activation of attributes typically ascribed to the activated category” (stereotype activation; p. 4), “use of activated stereotypic concepts in construing the stimulus person” (stereotype application; p. 4), and “attempts to ‘undo’ the effects of stereotype application” (stereotype correction; p. 4). This model predicts that in these stages, negative affect is more beneficial than positive affect in eliminating stereotyping.

Bodenhausen et al.’s (2001) model provided a plausible explanation for the equivocal literature regarding the impact of mood on stereotyping; however, many of the studies on mood and stereotyping used different materials from one another, and these materials were often not directly related to racial stereotypes (e.g., restaurants or objects; Bless et al., 1996; Isen & Daubman, 1984). Even studies that looked at social categorization did not directly study the categorization of race (Dovidio et al., 1995; Isen et al., 1992).

The current study focuses on the first two stages—identification and activation—and will use the same stimuli presented in two ways to test the Bodenhausen et al. (2001) model. Some participants will be presented with a race categorization task (modeled after Isen & Daubman, 1984) in which they will be asked to categorize names as those of criminals or politicians. Consistent with the previous literature on affect and
categorization, the researchers hypothesized that when positive mood is induced, individuals will demonstrate more inclusive categorization for positive categories (politician) but not negative categories (criminal).

A second group of participants will complete an activation task used in previous research (Park & Banaji, 2000). The goal of this task is to examine the activation of racial stereotypes by studying the labels that participants give to stereotypical African-American and European-American names. The researchers expected to replicate previous findings that individuals in a positive mood will demonstrate an increase in stereotype activation and rate a higher proportion of European-American than African-American names as politicians, and a higher proportion of African-American names than European-American names as criminals.

**Method**

**Pilot Study**

A pilot study was conducted to develop the materials for the categorization task of the main study. The pilot study adapted the stimuli used in the activation task into a categorization task in order to compare the effect of mood on both stereotyping in categorization and in activation tasks, while keeping the stimuli consistent. In this pilot study, participants rated names (adapted from Park & Banaji, 2000) in terms of how well they belonged in the categories criminal and politician, allowing us to identify strong and weak exemplars of those categories.

**Participants.** Twenty-one participants in an introductory psychology course at a small public liberal arts college in the mid-Atlantic region completed the study for partial course credit. The specific demographics of the sample are unavailable; however, we believe that the students in the sample were representative of the college as a whole, with the majority of the participants Caucasian (64%) and female (66%).

**Materials and procedure.** Participants completed a survey in which they rated stereotypical African-American and European-American names in terms of how well they belonged in the categories criminal or politician on a scale from 1 (*not at all*) to 10 (*very much*). The names, categories (Park & Banaji, 2000), and scale (Isen & Daubman, 1984) were drawn from previous research on stereotyping and categorization. This method was used in previous research on social categorization to identify strong and weak exemplars of person categories (Isen et al., 1992).

Descriptive statistics were computed for each name on the survey. Weak exemplars were identified as having an average rating of less than four, and strong exemplars were identified as having an average rating greater than six. Previous research has identified these cut-off values appropriate for the identification of strong and weak exemplars of social categories (Isen et al., 1992). The results identified strong and weak exemplars of person names for each racial category.

**Main Study**

**Participants**

The main study consisted of 129 participants (69% women, 31% men) between the ages of 18 and 24 with a mean age of 19.2 (SD = 1.18). Approximately 81.4% identified themselves as Caucasian, 11.1% Asian American, 4.7% African American, 3.1% Hispanic, and 2.3% classified themselves as “other.” All participants were undergraduate students from a small, public, liberal arts college in the mid-Atlantic region.

**Procedure**

Participants completed the study in a classroom in groups (average group size of 15). Upon entry to the experiment, participants completed an informed consent form and short demographic questionnaire. Following these short questionnaires, participants were told that they would watch a film clip. Participants were not given any specific information regarding the purpose of the film clip. Following the film clip, participants immediately completed either the categorization or the activation task in the same classroom in which they had viewed the video. Detailed information about the mood induction procedure, as well as the stereotype categorization and activation tasks follows.

**Materials**

**Mood induction.** Participants in this study viewed a silent film clip intended to induce a positive, negative, or neutral mood state. To induce positive mood, participants viewed a segment from the film *When Harry Met Sally* (149 s) in which a man and a woman are talking about sex in a restaurant. No participants expressed any concerns regarding the sexual nature of the film clip. For the negative mood condition, participants viewed a brief clip from the film *The Champ* (171 s), in which a young boy witnesses his father’s death after a boxing match. Participants assigned to the neutral mood condition viewed a clip from *Hannah and Her Sisters* (92 s), in which two girls go shopping. All clips were adapted from Hewig et al. (2005). Although Hewig and colleagues (2005) validated these clips without sound, other researchers also used these clips with sound to induce certain mood states (Fredrickson & Branigan, 2005; Gross & Levenson, 1995; Martin, 1999).

**Categorization task.** One group of participants (*n* = 59) completed a categorization task modeled after previous research on mood and categorization (Isen & Daubman, 1984; Isen et al., 1992). In this task, the
experimenter read the names of strong and weak exemplars (for example, the name Albert Allen received an average rating of 6.75 for the politician category in the pilot study) of the categories criminal and politician. Participants were instructed to rate 30 names on how well they fit the categories of criminal (12 names) and politician (18 names) on a scale from 1 (not at all) to 7 (very much) on a separate sheet of notebook paper. These names were a subset of the names that were used in the activation task.

**Stereotype activation task.** A second group of participants (n = 70) completed a stereotype activation task used in previous research (Park & Banaji, 2000). In this task, participants were instructed to judge whether or not stereotypical African-American or European-American names were those of criminals, or politicians. For example, given the name Dave Laden, participants could mark whether he was a “politician” or “not a politician.” The order of the categories presented was counterbalanced, and the African-American and European-American names were presented in random order to control for an order effect.

**Mood manipulation check.** After they completed the categorization or activation task, participants completed an Emotion Report Form (adapted from Fredrickson, Mancuso, Branigan & Tugade, 2000). This form consists of nine different emotions such as “happiness” and “sadness.” Participants rated their mood states in response to the film they watched on a 9-point scale ranging from 0 (none) to 8 (a great deal).

**Results**

**Stereotype Categorization**

**Mood manipulation check.** Analyses indicated that participants in each condition reported statistically significant differences in emotions. The means, standard deviations, and significance levels can be found in Table 1. Participants in the positive mood condition reported higher levels of amusement, contentment, and happiness than both the neutral and negative affect conditions. Participants in the negative mood condition reported higher levels of sadness than both the neutral and positive affect conditions and higher levels of anxiety than the positive affect condition. Participants in the neutral mood condition did not report high levels of any mood state. A Bonferroni correction was conducted to control for multiple analyses. All mood manipulation analyses were conducted at the .006 significance level.

**Categorization analyses.** The original intention was to analyze the data using a 3 (mood) x 2 (strong or weak exemplar) x 2 (category) x 2 (target race) ANOVA; however, the pilot study did not identify any African-American names that were strong exemplars of the politician category. Accordingly, the strength variable was dropped from the analysis, and the data were analyzed by a three-way mixed ANOVA with one between-subjects factor (positive, negative, and neutral mood), and two within-subjects factors (target race and category). The means and standard deviations of these categorization ratings can be found in Table 1.

A statistically significant interaction between target race and category was detected, $F(1, 56) = 45.91, p < .001$. See Figure 1 for a graph of this interaction. Follow up analyses indicated that for the politician category, European-American names ($M = 3.65, SD = 1.32$) were rated higher than African-American names ($M = 2.33, SD = 1.11$), $t(58) = 9.28, p < .001$. However, for the criminal category, no significant difference was detected between ratings of African-American

**TABLE 1**

| Categorization Task: Means and Standard Deviations for Reported Emotions During Film Clips |
|-----------------------------------------------|-----------------|-----------------|-----------|
| **Emotion**                                | **Mood Condition** |                | **Significance** |
|                                              | **Positive (n = 24)** | **Neutral (n = 14)** | **Negative (n = 21)** | **(α = .006)** |
| Amusement                                  | 5.54 (1.88)        | 1.00 (1.03)      | 1.19 (1.40)        | $p < .001^*$   |
| Anger                                      | 0.50 (1.18)        | 0.07 (0.27)      | 1.33 (1.77)        | $p = .017$     |
| Anxiety                                    | 0.50 (1.18)        | 0.71 (1.64)      | 2.22 (2.22)        | $p = .002^*$   |
| Contentment                                | 3.83 (1.79)        | 1.86 (1.61)      | 1.38 (1.66)        | $p < .001^*$   |
| Disgust                                    | 1.04 (1.65)        | 0.14 (0.53)      | 1.45 (2.06)        | $p = .079$     |
| Fear                                       | 0.45 (1.10)        | 0.29 (0.83)      | 1.48 (2.04)        | $p = .030$     |
| Happiness                                  | 3.75 (1.70)        | 1.86 (1.92)      | 0.29 (0.90)        | $p < .001^*$   |
| Sadness                                    | 0.33 (1.01)        | 0.79 (1.63)      | 4.86 (2.73)        | $p < .001^*$   |
| Serenity                                    | 2.46 (2.06)        | 2.50 (1.88)      | 1.38 (1.47)        | $p = .097$     |

* Different subscripts represent mood condition groups that differed significantly for each reported emotion.
(M = 3.02, SD = 1.41) and European-American (M = 2.65, SD = 1.13) names, when controlling for multiple analyses with a Bonferroni correction (compared at .025 level), t(58) = 2.11, p = .04.

The main effect for target race was also statistically significant, F(1, 56) = 24.48, p < .001, although this main effect seemed to be due to the interaction indicating that European-Americans were rated higher for the politician category. The main effect for mood was not statistically significant. All remaining analyses for the categorization task were not significant.

**Stereotype Activation**

**Mood manipulation check.** Analyses indicated that the mood induction procedure elicited significantly different emotions among the three mood conditions. The means, standard deviations, and significance levels can be found in Table 2. In comparison to other conditions, participants in the positive mood condition reported high levels of amusement, contentment, and happiness. Participants in the negative mood condition reported high levels of sadness and anxiety, and participants in the neutral mood condition did not report high levels of any mood state.

**Activation analyses.** Prior to analyses, percentages of names rated as politicians and criminals were calculated for each participant. These percentages served as the primary dependent variable for all subsequent analyses. A four-way mixed ANOVA was conducted with two between-subjects factors (order and mood) and two within-subjects factors (target race and task) to test for order effects. The results did not reveal a statistically significant four-way interaction.

The order variable was dropped from the analysis and a three-way mixed ANOVA was conducted with

<table>
<thead>
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<th>TABLE 2</th>
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<tr>
<td><strong>Activation Task: Means, Standard Deviations, and Significance Values of Emotions Reported</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Emotion</th>
<th>Positive (n = 26)</th>
<th>Neutral (n = 23)</th>
<th>Negative (n = 19)</th>
<th>Significance (α = .006)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amusement</td>
<td>4.79 (1.84) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.00 (1.48) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.54 (0.76) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p &lt; .001 *</td>
</tr>
<tr>
<td>Anger</td>
<td>0.42 (1.22) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.17 (0.49) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.27 (1.51) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p = .004*</td>
</tr>
<tr>
<td>Anxiety</td>
<td>0.68 (1.11) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.78 (1.31) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>2.56 (1.91) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p &lt; .001 *</td>
</tr>
<tr>
<td>Contentment</td>
<td>3.16 (1.95) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.83 (1.99) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.59 (1.19) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p &lt; .001*</td>
</tr>
<tr>
<td>Disgust</td>
<td>0.79 (1.62) &lt;sub&gt;ab&lt;/sub&gt;</td>
<td>0.43 (1.20) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>1.81 (1.84) &lt;sub&gt;ab&lt;/sub&gt;</td>
<td>p = .009*</td>
</tr>
<tr>
<td>Fear</td>
<td>0.05 (2.23) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.22 (1.04) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.96 (2.10) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p = .009*</td>
</tr>
<tr>
<td>Happiness</td>
<td>2.95 (2.57) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.17 (1.85) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.44 (1.09) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p &lt; .001*</td>
</tr>
<tr>
<td>Sadness</td>
<td>0.37 (1.12) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.74 (1.57) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>5.21 (2.47) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p &lt; .001*</td>
</tr>
<tr>
<td>Serenity</td>
<td>2.05 (1.87) &lt;sub&gt;a&lt;/sub&gt;</td>
<td>1.48 (2.06) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.81 (1.90) &lt;sub&gt;b&lt;/sub&gt;</td>
<td>p = .109</td>
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<sup>a</sup>Different subscripts represent mood condition groups that differed significantly for each reported emotion.
one between-subjects factor (positive, negative, or neutral mood) and two within-subjects factors, target race (African-American, European-American) and task (criminal judgment, politician judgment).

A statistically significant interaction was detected between target race and task, $F(1, 67) = 20.36, p < .001$. Follow up analyses indicated that participants rated a higher percentage of African-Americans ($M = 59.4\%$, $SD = 28\%$) than European-Americans ($M = 32.7\%$, $SD = 21.3\%$) as criminals, but they rated a higher percentage of European-Americans ($M = 44.5\%$, $SD = 23.4\%$) than African-Americans ($M = 33\%$, $SD = 27\%$) as politicians. All remaining stereotype activation analyses were not significant.

**Discussion**

In the current study, two groups of participants underwent mood induction procedures then completed one of two tasks to examine the influence of mood on stereotype categorization and activation, the first two levels of stereotyping according to Bodenhausen et al. (2001). The results of this experiment did not support the original hypotheses that experiencing positive affect would lead to more inclusive categorization and increased stereotype activation; however, significant interactions emerged on both the stereotype categorization and activation tasks when collapsing across mood conditions.

**Stereotype Categorization**

On the stereotype categorization task, participants rated the extent to which several stereotypical European-American and African-American names belonged to the broader categories of politician or criminal. For the politician category, participants rated European-American names as more typical of politicians than African-American names, but there was no difference in name ratings for the criminal category. It seems that individuals were more likely to include European-Americans in a category with a positive valence (politician), but did not include either race significantly more often in a category with a negative valence (criminal).

The absence of differences among affect conditions differs from previous research that indicated individuals in positive moods are more inclusive in their categorizations of both objects (Isen & Daubman, 1984) and people (Isen et al., 1992). Each of these studies used objects or ambiguous categories of individuals (e.g., bartender), and not specific names. Perhaps the use of names as stimuli is not an adequate way to measure categorization of individuals. In fact, previous research suggests that positive mood influences the range of associations to ambiguous or neutral material (Isen, Johnson, Mertz, & Robinson, 1985). The names used in the current study were stereotypical and common names, and therefore may not have been ambiguous or neutral. The lack of neutrality among these names could explain the absence of mood influences on categorization. If participants attach meaning to the names and believe that they apply to specific individuals, then they can no longer be considered ambiguous and neutral. As a result, mood would no longer influence the categorization of these names.

Consistent with this notion of neutrality, Urada and Miller (2000) examined the role that category importance plays in social categorizations. Building on the work of Isen and her colleagues, Urada and Miller studied broadened positive categorization among participants experiencing positive affect in situations when they made judgments about another person who was a member of two groups (i.e., two in-groups, two out-groups, or one of each) and these groups varied by degree of importance, which was operationalized in terms of significance to self-identity. These researchers suggest that some categories are naturally viewed as more important or salient to one’s self-identity than others. For example, race is typically viewed as a more important social category than college major. In this study, participants completed an information form on which they were required to categorize themselves on a variety of social dimensions (e.g., race, religion) and then also rated how important that category was to their self-identity. After receiving this information, the researchers then told participants that they would be required to work with another person who was described in terms of the aforementioned categories and asked participants to rate their potential partner in terms of desirability and preference as a partner.

The results of this study indicated that when individuals were in a positive mood, they viewed cross-category memberships (i.e., one in-group, one out-group) more favorably. However, participants provided less favorable judgments of those who were members of an important out-group (e.g., another race). In addition, these researchers suggested that race might be a category of greater importance than other categories (Urada & Miller, 2000). The results of their study indicated that categories weighted with greater importance are resistant to the broadened categorization exhibited by individuals experiencing positive affect. These findings could provide an explanation for the failure to find broadened categorization in the current study. If race is weighted as an important category, then it would be resistant to the broadened categorization that has been found in previous research (Isen et al., 1992; Isen & Daubman, 1984).

The current study also revealed that individuals were more likely to choose European-American indi-
individuals as belonging to the category politician; however, neither European-American nor African-American names were more likely to be categorized as belonging to the criminal category. Previous research on affect and categorization suggested that when individuals experience positive moods, they will be more likely to nominate positive or neutral person exemplars more broadly into positive social categories, but they would not be more likely to categorize negative person exemplars into negative categories (Isen et al., 1992). The current study revealed that across mood conditions, individuals included names rated as strong exemplars (e.g., European-Americans as a politician) in a positive social category, but did not include either strong or weak exemplars in the negative social category.

The findings of the current study may be explained in terms of Bodenhausen et al.’s (2001) category identification stage of stereotyping by understanding the differences between horizontal and vertical categorization. Perhaps the categorization task used in the current study did not adequately measure a vertical categorization, which Bodenhausen et al. identified as being more susceptible to influences of mood. The categories of criminal and politician are relatively distinct categories and not necessarily part of a broader hierarchy, in which participants could rate the names as being more inclusive in the broader levels of the hierarchy.

**Stereotype Activation**

On the stereotype activation task, participants labeled stereotypical African-American and European-American names as criminals or not, or as politicians or not, whereas on the stereotype categorization task, participants rated the extent to which names belonged to the broader categories of politician or criminal. In previous research, individuals in positive moods were more likely to label European-American names as politicians, and African-American names as criminals (Park & Banaji, 2000). The current study failed to replicate these findings. Instead, we found that regardless of mood condition, participants rated a higher percentage of the African-American names as criminals, and European-Americans as politicians.

The inability to replicate the findings of Park and Banaji (2000) should be considered in light of several factors. First, characteristics of the sample should be considered. The sample used in the present study and the sample obtained by Park and Banaji were similar in size and demographics. Therefore, it is not likely that characteristics of the sample explain the differences between the present study and the original study, for those two characteristics, at least. In addition, characteristics of the mood induction procedure may play a role in the present findings. The current study used short film clips (approximately 2 min), without sound to induce mood, whereas Park and Banaji used longer clips (approximately 10 min) in their mood induction procedure. It is also interesting to compare the proportions of names rated as criminals or politicians in the current study to those in found by Park and Banaji. Participants in the current study rated higher proportions of names as being politicians or criminals, regardless of mood or race of the name, than the Park and Banaji. It is unclear why these differences emerged; however, it is a factor to be considered in understanding the results of the current study.

Bodenhausen et al. (2001) suggested that mood might be a distracting or motivating factor in the stereotype activation stage. Individuals may be distracted by their mood states, and notice a decrease in stereotype activation, or they might be motivated to repair a negative mood or maintain a positive mood and therefore uphold stereotype activation. This does not explain the results of the current study that indicate more positive stereotypes for members of one race, but more negative stereotypes for members of another race. The underlying factors explaining the influence that mood may or may not have on stereotype activation should be explored further.

**Stereotype Categorization Versus Activation**

The findings on the activation task differ from those of the categorization task because effects were found for both the politician and the criminal categories, whereas on the categorization task there was only an effect detected for the politician category. The aim of the categorization task was to understand whether individuals in different mood states would include names typical of different races in specific categories, whereas the goal of the activation task was to understand how individuals apply these labels. Intuitively, it seems as though these two tasks would be comparable to one another; however, they resulted in differential outcomes. It seems as though people are less likely to include anyone in a negative social category (i.e., criminal) when asked how well that person fits in the category; however, when asked specifically if a name is a criminal or a noncriminal, people are more likely to rate African-Americans as criminals and European-Americans as politicians.

Another possible explanation for the different findings between the two tasks involves the measurement scale used for each task. The use of a scale for the categorization task allows for more variance to analyze. Comparatively, the dichotomous yes/no responses on the activation task, in which participants are forced to choose membership or non-membership in the category, resulted in less variance.
Limitations

The findings of the current study should be considered in light of a few limitations. First, the use of a homogeneous convenience sample should be considered. The majority of participants were Caucasian, and all participants were in their late teens or early twenties. Therefore, the ability to generalize the findings to the larger population is uncertain. Specifically, it is uncertain how members of other races might categorize names of different races. Research suggests that individuals view members of their in-group more favorably (Urada & Miller, 2000), so it is possible that individuals of other races might respond differently to the tasks used in the current study.

A second limitation involves the mood induction procedure used in this study. Although a manipulation check revealed that the mood induction was successful at inducing the intended mood states, it is important to examine the mood induction procedure as a potential factor influencing the inability to replicate previous findings. The moods induced in the lab may not have been comparable to moods experienced on a daily basis. The moods induced in the current study did not reach the level of intensity reported in previous research using the same film clips (Hewig et al., 2005).

In addition, other research revealing influences of mood on various processes demonstrated more intense emotions than the emotions reported in the current study (Fredrickson & Branigan, 2005). Research supports the use of film clips as an effective method for mood induction (Hewig et al., 2005); however, the clips used in this study differed from those used by Park and Banaji (2000) in their original study using the politician and criminal tasks. The current study used short, silent clips to induce mood; whereas Park and Banaji used longer clips (10 min) including sound in their mood induction procedure. In addition, Isen et al. (1992) used a gift rather than film clips to induce positive mood in their study on positive affect and social categorization.

Across mood conditions, on both tasks, participants’ responses were consistent with the hypothesis for the positive mood condition. On the categorization task, participants included strong exemplar persons in positive categories, but not negative categories, as expected by previous research (Isen et al., 1992). And on the activation task, participants demonstrated stereotype activation by reporting a higher percentage of European-Americans as politicians and African-Americans as criminals. Previous research suggests that people generally report mild positive affect (Diener & Diener, 1996). If the mood induction procedure did not induce the intended mood states, it is possible that all participants were experiencing mild positive affect, and responded accordingly to the given tasks. However, our manipulation check indicated that participants did experience the intended mood states.

Additional limitations, relating specifically to the two tasks, should also be taken under thoughtful consideration. According to Bodenhausen et al.’s (2000) stages, categorization is assignment, whereas activation involves the “mental activation of attributes typically ascribed to the activated category.” Attributes are typically considered to be labels (e.g., successful or unsuccessful). The use of the terms politician or criminal in the current study may have resulted in participants considering them to be categories rather than attributes, in which case there would be no attribute to rate on the activation task. Finally, it is possible that participants did not view politician as a positively-valenced category. A perception of politician as negative or neutral could influence the pattern of results as research has demonstrated that individuals in positive moods are more inclusive for positive categorizations (Isen et al., 1992).

Implications and Future Research

The findings of the current study have implications for the direction of research in several ways. First, this study adds to research on the influence of mood on categorization by studying more closely the categorization of names into social categories, rather than focusing on ambiguous stimuli (e.g., objects). In addition, the current study began to examine the differential impact that mood may have on engagement in stereotyping by empirically testing a proposed explanation (Bodenhausen et al., 2001) for the equivocal nature of the literature.

There are also many practical applications of this line of research as well. The current research has practical implications for how individuals make quick judgments with the dearth of information provided from the social world. Whether an individual is assigning someone to a category, or deciding whether or not to include that person in their in- or out-group, the information that is gained from the environment is vital in decision-making. The results of the current study also suggest that individuals may rely on stereotypes when making quick judgments and decisions about others—particularly when they are provided with little information about that person.

Future research should continue to examine the role of mood in stereotype categorization and activation. The inclusion of more races in a categorization task might provide insight into the issue of neutrality in the categorization of names. Future studies should also include more explicitly positive (e.g. philanthropist) categories to understand how individuals make positive
categorizations. In addition, a replication of the Park and Banaji (2000) findings that positive mood increases an individual’s reliance on heuristics in a social judgment task is still needed. Alternative mood induction procedures should be used to verify the findings of Park and Banaji’s study. Finally, future research should also test the final two stages (stereotype application and correction) of Bodenhausen et al.’s (2001) model using consistent materials. A test of the entire model using consistent materials would provide insight to the discrepant role that mood might play in engagement of stereotyping.

References


Child mental health is an area of growing concern for practitioners, educators, and researchers (Reyno & McGrath, 2006), as recent estimates indicate that approximately 11% of children in the U.S. suffer from a significant mental disorder (U.S. Department of Health and Human Services, 1999). Some groups of children may be particularly at risk for psychopathology due to factors such as discrimination, low socioeconomic status, and linguistic difficulty, which are known to increase child and family stress and adjustment (Canino & Spurlock, 2000; Yamamoto, Arturo-Silva, Ferrari, & Nukariya, 1997). While many factors have been implicated in the development of child psychopathology, research on parent-child attachment highlights the importance of responsive early interaction with a caregiver for positive child adjustment (Ainsworth, Blehar, Waters, & Wall, 1978; Bornstein, 1985; Bowlby, 1969, 1980).

Attachment Theory
Attachment is defined as the emotional bond between children and their caregivers (Bretherton, 1992; Roelofs, Meesters, Huurne, Bamelis, & Muris, 2006). Early interaction with a caregiver leads to one of three distinct attachment styles: secure, avoidant, and anxious-ambivalent (Ainsworth et al., 1978). In an experiment referred to as the Strange Situation procedure, Ainsworth and colleagues found that secure attachment is characterized by children having confidence to explore their environment in the presence of their caregiver. Upon separation from the caregiver, securely attached children are relatively easily consoled by others or the caregiver when she or he returns. Securely attached children tend to have caregivers who are sensitive, accepting, and responsive. Children with an avoidant attachment style tend to avoid contact with their caregivers, who are apt to be rigid and distant. Anxious-ambivalent children are likely to demonstrate ambivalence or anger toward their caregivers, and to have caregivers who demonstrate inconsistent caregiving behavior. Thus, children with responsive and supportive caregivers are likely to develop secure attachment.

Parent Response Type Affects Psychological Adjustment in Children

This study examined the associations between parent responsiveness to children during a parent-child play task and children’s psychological adjustment in 24 Hispanic mother-child dyads. The Noldus Observer was used for systematic coding of parent-child behavioral interaction. The Semistructured Clinical Interview for Children and Adolescents (McConaughy & Achenbach, 2001) assessed child psychological adjustment. Correlational analyses revealed that greater maternal responsiveness was positively correlated with child psychological adjustment in this Hispanic population. The results of this study suggest implications for early areas of intervention as well as future research in the area of parental responsiveness, including specific parental behaviors and parent-child interactive qualities, which may have the potential to improve child psychological adjustment.

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attachments, whereas children with unresponsive (i.e., distant or inconsistent) caregivers are likely to develop insecure attachments.

**Internal Working Models**

According to attachment theory, the process by which early interaction with caregivers leads to a particular attachment style is through an internal schema, the internal working model (IWM). Early interaction leads to the development of the IWM which guides children’s behavior, beliefs, and expectations and leads to a particular attachment style. Early parental “training” is thought to mold the child’s internal working model of attachment. During their first year of life, children learn to avoid behaviors and emotional expressions that make their primary attachment figures (usually mothers) uncomfortable. Caregivers can communicate their level of comfort or discomfort with a behavior by facial expression (i.e., a smile or a frown), by expressing it verbally (i.e., “don’t do that”), or by dismissing or ignoring it (i.e., changing the subject, looking away; Berlin, Ziv, Amaya-Jackson, & Greenberg, 2005).

Bowlby suggested that IWMs are “tolerably accurate reflections of the experiences those individuals actually had” (Bowlby, 1973, p. 235). He suggested that secure IWMs lead to positive perceptions of the present and expectations of the future, whereas insecure IWMs lead to psychopathology. Children whose caregivers consistently meet their needs in a loving and supportive manner tend to develop an IWM of others as good (i.e., trustworthy and dependable) and of themselves as good (i.e., attractive, competent, and loveable; Bretherton, 1992; Levy & Blatt, 1999). Alternatively, children whose caregivers do not regularly meet their needs, including those for contact and exploration, generally develop an IWM of others as bad (i.e., unreliable and uncaring) and of themselves as bad (i.e., unworthy, incompetent, and unlovable). As adults, those who have developed an IWM of themselves and others as bad tend to disappoint themselves and expect others to be unresponsive and uncaring.

Bowlby (1980) found empirical support for the stability of the IWM throughout the lifespan and more recent research seems to confirm this finding. The attachment style developed early in life was found to be associated with stress-coping abilities and attachment later in life (Willinger, Diendorfer-Radner, Willnauer, Jörgl, & Hager, 2005). Furthermore, being raised in an authoritative household, which is often the case for children with secure attachment (Karavasilis, Doyle, & Markiewicz, 2003), can influence perceptions of others’ trustworthiness, accessibility, and responsiveness positively in the context of relationships (Neal & Frick-Horbury, 2001). Shaver, Collins, and Clark (1996) have also suggested that expectations related to one’s IWM tend to be self-fulfilling over time. For example, if one has a history of being rejected, one will develop an expectation of rejection from others and behave in ways that promote further rejection. Klohnen and Bera (1998) conducted a longitudinal study of 100 women between the ages of 21 and 52 and found consistent IWMs in these women throughout their lifespan, as well as a correlation between their IWMs and self-report measures of their childhood environments. In conclusion, children who are securely attached to their attachment figures and develop positive IWMs enjoy better mental health and greater wellbeing, both in childhood and later in life.

In summary, one mechanism at play in determining whether children develop adaptive psychological functioning is children’s attachment to their primary caregivers (Ainsworth et al., 1978; Bornstein, 1985; Bowlby, 1969, 1980).

**Parent-Child Interaction**

Positive interaction between parent and child is often described by trained observers as a flowing, “coordinated interaction” (Kerns, 1994). Harrist and Waugh (2002) further explain that it is possible for two people who are closely attached, such as parent and child, to show and perceive in each other the following characteristics: shared sustained foci of attention, shared understanding, mutually high positive affect, mutually positive appropriate bids and responses, mutually respectful deference and receptivity, mutually enjoyable interactions, shared relatively moderate intensities of arousal, and high levels of positive, contingent, sensitive responsiveness and attunement. Thus, when optimal parent-child interaction occurs, both partners coordinate each other and appear to be operating as one dyad rather than two individuals involved in turn-taking or noncontingent behaviors (Fogel, 1995). According to theoretical premises, the degree and quality of the interaction (i.e., parents sensitively responding to children’s bids) is a key component in the transmission of the IWM from parent to child (Bowlby, 1980). Therefore, examining parents’ responses to their children’s bids may provide a window into their attachment dynamic.

**Gaps in Literature**

Though research clearly supports a direct link between a caregiver’s IWM, parenting behavior, and child attachment, very little research has succeeded in supporting the hypothesis that parenting behavior is the mediating factor between caregiver IWM and child attachment (Cassidy et al., 2005). This may be in part due to the fact that most research has used global measures of
parent-child interaction which can potentially cause researchers to miss some important yet subtle aspects of parent-child interaction. Fortunately, new methodological advances permit more micro-level observation of parent-child dyads.

Furthermore, little attachment research has specifically examined Hispanic mother-child dyads, yet research has revealed differences in parenting and relational aspects between various cultures. Research on Hispanic populations is especially important considering the rapid growth rate of this population in the U.S. According to the U.S. Census (2005), the Hispanic population grew by 21% between the years of 2000 and 2004, making them the largest and fastest growing population in the United States. This population appears to have a greater risk for developing psychopathology, due to their lower socioeconomic status, experiences of discrimination, and linguistic challenges experienced in this country (Canino & Spurlock, 2000). Therefore, the need for research with this population is of increasing importance. Few studies have investigated the parental influence on child psychopathology specifically within these Hispanic families, despite the fact that different cultures have distinct child-rearing practices (Ferrari, 2002).

The Current Study
This study sought to address the empirical gaps outlined in this paper in order to facilitate more efficacious prevention and intervention efforts, specifically those in this paper in order to facilitate more efficacious prevention and intervention efforts, specifically those in this paper.

Assessment Procedures
Prior to the start of the assessment, mothers received an explanation of the research and signed informed consent forms, which included consent to be videotaped during the play task. A play task assessment was then conducted with each parent-child dyad during their first visit. This play task consisted of four 5-min tasks, both structured and unstructured, which created a close approximation of play behaviors in the natural environment. Specifically, there was a puppet task, a Lincoln Log task, a ball and trash can task, and a snack and clean-up task. After the play task assessment, the child completed routine age-appropriate assessments with a therapist while the parent completed self-report questionnaires.

Method
Participants
Data for this study were collected as part of an on-going study, The Child Development and Family Enrichment Project, at the Youth and Family Development Program (YFDP) in the department of psychology at a large southern university. While other ethnicities participated, only the 24 Hispanic mother-child dyads were used for analyses. Children’s ages ranged from 6 to 12 years (M = 8.06; SD = 2.06). Nineteen (approximately 80%) of the children were boys and 5 (approximately 20%) were girls. Mothers’ ages ranged from 21 to 52 with a mean age of 35.18. Thirty (75%) of the mothers were married, six (15%) were divorced, two (5%) were separated, one (2.5%) was single, and one (2.5%) did not report her marital status. Two (5%) of the mothers had completed some high school, five (12.5%) had completed high school, 13 (32.5%) had completed some college, 16 (40%) had attained bachelor degrees, two (5%) had attained advanced degrees, and two (5%) did not report their education levels.

Procedure
Parents who contacted YFDP with questions based on curiosity, or concerns about their child’s development (i.e., school readiness, divorce adjustment, age-appropriate behavior), were given a description of the services provided by YFDP, including the Developmental Assessment and Feedback Session—a service offered by counseling psychology practicum/internship students at YFDP. Parents were then screened for eligibility for participation in the study (i.e., target children were between the ages of 6 and 12 and did not meet criteria for certain disorders which were beyond the scope of YFDP). Families who did not qualify for these reasons were referred to psychology clinics at nearby universities. Parents who did qualify for the current study were offered the opportunity to obtain their Developmental Assessment at a reduced rate in exchange for their participation in the research.

Assessment Procedures
Prior to the start of the assessment, mothers received an explanation of the research and signed informed consent forms, which included consent to be videotaped during the play task. A play task assessment was then conducted with each parent-child dyad during their first visit. This play task consisted of four 5-min tasks, both structured and unstructured, which created a close approximation of play behaviors in the natural environment. Specifically, there was a puppet task, a Lincoln Log task, a ball and trash can task, and a snack and clean-up task. After the play task assessment, the child completed routine age-appropriate assessments with a therapist while the parent completed self-report questionnaires.

Measures
Background questionnaire. The questionnaire contained questions about the mother’s age and ethnicity as well as about the sex, age, and ethnicity of her participating child. The questionnaire also included questions about education and family income.

The Semistructured Clinical Interview for Children and Adolescents. Counseling psychology practicum/internship students at YFDP used the Semistructured Clinical Interview for Children and Adolescents (SCICA; McConaughy & Achenbach, 2001) to assess...
child psychological adjustment. The SCICA is a paper-and-pencil measure containing 247 questions that measure a child’s self-report as well as a therapist’s perception of a 6- to 18-year-old child’s behavior problems. After the interview, the therapist fills out the observation form indicating both behaviors observed by the therapist and those reported by the child. For example, the questionnaire asks the therapist questions such as whether the child “reports being self-conscious or easily embarrassed” on a scale of zero to three (0 = no occurrence, 3 = definite occurrence with severe intensity of 3 or more minutes duration). The current study used the Aggression/Rule Breaking Behavior, Self-Control Problems, DSM Affective Problems, DSM Oppositional Defiant Problems, DSM Conduct Problems, as well as the Externalizing Problems and Total Self-Report Problems scales. Higher scores on these scales indicate more child adjustment problems.

The SCICA has been reported to be reliable ($r = .78$, $p < .01$; McConaughy & Achenbach, 2001) and to be highly correlated with the Child Behavior Checklist, which has a strong empirical base with good validity and reliability (Achenbach & Edelbrock, 1983; Biederman et al., 2001; Sheeber & Johnson, 1994). A computer scoring program, Assessment Data Manager (ADM), manufactured by Achenbach System of Empirically Based Assessments (ASEBA), was used to determine age-normed subscale z-scores for the scales and subscales.

### Data Coding of Parent Responsiveness

We coded observational ratings of parent-child interaction during these play tasks using a computer software package, the Noldus Observer XT 7.0, by viewing the 20-min play tasks, which were videotaped through a one-way mirror. We coded child bids as one of the following: direct request, indirect request, intentional touch, join/intervene, or gesture. Mothers’ responses to these bids were evaluated for contextual appropriateness and rated as accept-engage, accept-acknowledge, ignore, or reject. Mothers’ responses, verbal or nonverbal, of accepting and engaging were assigned a value of 3. Mothers’ responses of accepting minimally simply by acknowledging were assigned a value of 2. Mothers who responded to their child’s bid by ignoring were assigned a value of 1 and mothers’ rejecting responses were assigned a value of 0. Following conventions established by Biringen (1994), mean parent responsiveness to child bids was calculated to determine how responsive, overall, a mother was to the bids of her child. Additionally, we calculated counts of each type of child bid and parent response.

Two extensively-trained undergraduate raters coded the videos together with a detailed coding manual to reference. Any disagreement was discussed with an arbitrator to reach consensus. Additionally, 20%

### Table 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>$M$</th>
<th>$SD$</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother-Child Interaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Number of Child Bids</td>
<td>3.29</td>
<td>2.53</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Mean Mother Response</td>
<td>2.35</td>
<td>0.55</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Number of Reject Responses</td>
<td>0.21</td>
<td>0.66</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Number of Ignore Responses</td>
<td>0.46</td>
<td>0.72</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Number of Accept-Engage Responses</td>
<td>1.46</td>
<td>1.38</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td><strong>Child Adjustment Problems</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aggressive/Rule Breaking Behavior</td>
<td>3.25</td>
<td>3.08</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Self-Control Problems</td>
<td>1.08</td>
<td>1.61</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>7.25</td>
<td>6.71</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>Total Self-Report Problems</td>
<td>12.50</td>
<td>11.60</td>
<td>0</td>
<td>38</td>
</tr>
<tr>
<td>DSM Affective Problems</td>
<td>1.25</td>
<td>2.92</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>DSM Somatic Problems</td>
<td>5.00</td>
<td>2.65</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>DSM Oppositional Defiant Problems</td>
<td>2.54</td>
<td>2.98</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>DSM Conduct Problems</td>
<td>0.67</td>
<td>1.27</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

*Note. N = 24.*
of the tapes rated each week were randomly chosen to be independently rated by the investigator, in order to ascertain integrity of the coding scheme as applied by the raters and prevent rater drift. Percent agreement between the coding team and the investigator was required to remain above 80%. All coding met this criterion with a percent agreement ranging from 81.4 to 100%.

Results

Preliminary analyses included the calculation of descriptive statistics, including means, standard deviations, and skewness and kurtosis levels for all study variables and measures of central tendency where appropriate (See Table 1). There were no missing data and continuous variables were approximately normally distributed.

Child age and gender were assessed for appropriate-ness for inclusion as covariates; however, they were not significantly associated with any study variables and were therefore not included in subsequent analyses.

One-tailed Pearson correlations were run to test the hypothesis that Hispanic children whose mothers are more responsive during play will have children with lower scores on measures of psychological adjustment as measured by the Semistructured Clinical Interview for Children and Adolescents (SCICA). Table 1 shows the mean, standard deviation, and range for each of the study variables.

Table 2 shows the correlations between mother-child interaction and child symptomatic problems. An analysis of the data revealed significant negative correla-

### TABLE 2

<table>
<thead>
<tr>
<th>CBCL competence scores</th>
<th>Mother-child interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean mother response</td>
</tr>
<tr>
<td>Aggressive/rule breaking behavior</td>
<td>-.47**</td>
</tr>
<tr>
<td>Self-control Problems</td>
<td>-.17</td>
</tr>
<tr>
<td>Externalizing Problems</td>
<td>-.21</td>
</tr>
<tr>
<td>Self-report Problems</td>
<td>-.39*</td>
</tr>
</tbody>
</table>

Note. \( N = 24 \).

* = Cannot be computed because at least one of the variables is constant.
* = NS Correlation at the 0.05 level (1-tailed) approached significance.
** = Correlation is significant at the 0.05 level (1-tailed).
*** = Correlation is significant at the 0.01 level (1-tailed).

### TABLE 3

<table>
<thead>
<tr>
<th>CBCL scores on DSM subscales</th>
<th>Mother-child interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean mother response</td>
</tr>
<tr>
<td>DSM scales Affective Problems</td>
<td>-.03</td>
</tr>
<tr>
<td>DSM scales Oppositional Defiant Problems</td>
<td>-.67***</td>
</tr>
<tr>
<td>DSM scales Conduct Problems</td>
<td>-.33*</td>
</tr>
</tbody>
</table>

Note. \( N = 24 \).

* = NS Correlation at the 0.05 level (1-tailed) approached significance.
** = Correlation is significant at the 0.05 level (1-tailed).
*** = Correlation is significant at the 0.01 level (1-tailed).
tions between scores on the Aggressive/Rule Breaking Behavior subscale and mean mother response, \( r(24) = -0.47, p = .02 \), and the number of accept-engage responses to child bids, \( r(24) = -0.41, p = .05 \). Scores on the Self-Control Problems subscale were positively correlated with the number of ignore responses to child bids, \( r(24) = 0.39, p = .02 \), and the total number of child bids during interaction \( r(24) = 0.57, p = .04 \). Additionally, scores on the Total Self-Report Problems scale were negatively correlated with the mean mother response to child bids, \( r(24) = -0.39, p = .04 \).

Table 3 shows the correlations between mother-child interaction and child problems on the DSM scales of the SCICA. As expected, scores on the DSM Oppositional Defiant Problems subscale were positively correlated with the number of reject responses to child bids, \( r(24) = 0.67, p = .001 \), and negatively correlated with mean mother responses to child bids \( r(24) = -0.67, p = .001 \), and the number of accept-engage responses to child bids, \( r(24) = -0.34, p = .05 \).

Additionally, there were several trends in the data that were directionally consistent with the hypotheses, although the correlations were not statistically significant. Scores on the Total Externalizing Problems scale were associated with the number of ignore responses to child bids (see Table 2), as indicated by a \( p \) value that approached significance, \( r(24) = 0.27, p = .09 \). As shown in Table 3, scores on the DSM Affective Problems subscale were associated with the number of ignore responses to child bids \( r(24) = 0.27, p = .08 \), and the total number of child bids, \( r(24) = 0.36, p = .07 \). Finally, scores on the DSM Conduct Problems subscale were associated with the number of child bids during interaction, \( r(24) = 0.41, p = .05 \), and negatively associated with the mean mother response to child bids, \( r(24) = -0.33, p = .07 \).

**Discussion**

This study examined the association between mother responsiveness to child bids for interaction during play and child psychological adjustment. In light of prior research (e.g., Cumberland-Li, Eisenberg, Champion, Gershoff, & Fabes, 2003; Eisenberg et al., 2001; Eisenberg et al., 2003; Landry, Smith, Swank, Assel, & Vellet, 2001), we hypothesized that children whose mothers were more responsive to their bids for interaction would have children with lower scores on measures of psychological problems as measured by the Semistructured Clinical Interview for Children and Adolescents (SCICA). This hypothesis was tested using a microbehavioral level coding of mother-child interaction and individual subscales of the SCICA. The hypothesis was partially supported. We found that children who make more bids for interaction with their mothers or whose mothers are more responsive to their bids (i.e., engaging with their children in response to their bids for interaction) had less problematic behavior in the areas of aggression and rule breaking behavior, self-control problems, attention problems, externalizing problems, and total problems in general. In our interpretation of these results, we follow child clinical literature which interprets fewer behavioral problems or psychological symptoms implies better adjustment (Achenbach & Edelbrock, 1983).

The mothers who showed more engaged and responsive behavior in response to their children’s bids for interaction had children who exhibited less aggressive/rule-breaking behavior. This finding is consistent with Roelofs et al. (2006), who found that children who were insecurely attached to their primary caregivers had more symptoms of aggression. The increased level of rule-breaking behavior seen in the children of less responsive mothers may be a sign that their needs for parental responsiveness are not being met and their misbehavior is simply their way of eliciting some kind of response (Oxford, Cavell, & Hughes, 2003).

Mothers who ignored their children’s bids for interaction had children who exhibited more self-control problems and affective problems. Children with more affective problems were also found to have made more bids for interaction. The higher frequencies of bids in these dyads could be due to the elevated number of ignore responses they received from their mothers; children made increased attempts in an effort to elicit a responsive reply. Consistent with Jones et al. (2008) who found the positive emotional expressivity of a parent to be negatively correlated with child externalizing problems, mothers who ignored their children’s bids for interaction had children who displayed more aggressive/rule-breaking behavior, attention problems, and self-control problems. Jones et al. (2008) suggested this could be because such children were seeking attention, even negative attention, from their parents, who continually ignored their bids for interaction.

Mothers who responded more frequently to their children’s bids also displayed a poorer quality of responsiveness (i.e., lower mean responsive type). These children also tended to make more bids for interaction. This may be due to the fact that although these parents responded to their children frequently, they did so in a negative way. The mothers of these children were also less likely to engage with them in play, meaning that their responses to their children’s bids were less than optimal.

Children who displayed more conduct problems on the DSM scale also made more bids for interaction, which may be due to the child attempting to attain an optimal response from his or her mother. The mothers of these children were less responsive overall, mean-
ing that the mother never responded optimally to her child’s bids.

Mothers with more instances of “reject” responses to their children’s bids for interaction and who were less responsive overall were found to have children with higher scores of oppositional defiance on the DSM scale. Similarly, mothers with more instances of “reject” responses were also found to have children with more adjustment problems overall.

The results are consistent with the premises of attachment theory, which posit that early interaction between a child and his or her primary caregiver leads to the construction of an IWM that shapes future interactions (Bowlby, 1980). According to attachment theory, maternal responsiveness during interaction should predict secure attachment and ultimately healthy psychological functioning. The degree and quality of the interaction is a key component in the transmission of the IWM from parent to child. Furthermore, during optimal parent-child interaction, both partners coregulate each other and appear to be operating as one dyad, with attunement and responsiveness to each others’ bids (Fogel, 1993). In this study, Hispanic mothers who interacted responsive to their children’s bids had children who were better adjusted than mothers who were less optimally responsive.

**Limitations**

The current study had several limitations. The small sample size we used was one significant limitation. However, the fact that we detected significant associations between mother responsiveness and child psychological adjustment in such a small sample size suggests that the associations warrant further evaluation to see if they can be replicated in a larger sample. The current study also only examines mother-child dyads. Future studies should examine father-child dyads as well. Additionally, this sample included both mothers who were curious about their child’s development and mothers who had behavioral concerns, so ranges of child adjustment may have been skewed somewhat negatively. Finally, the current study relied on correlational findings and cannot determine causality between the variables. Follow-up studies should be done to tease out causal sequencing.

**Implications**

The present study contributes to the accumulation of literature on parent-child interaction, and specifically parent responsiveness and its association with child outcomes by shedding light on specific parental behaviors and parent-child interactive qualities which are linked to child psychological adjustment. The results of this study offer evidence of the importance of engaged parental responses to children’s bids for interaction as well as overall responsiveness, and how they might relate to child adjustment problems.

Furthermore, the results of this study suggest promising areas for early interventions. Specifically, if contributing factors for child adjustment problems can be pinpointed, early parental education and family interventions may target their change and thus help prevent, or reduce the severity of, these child problems. Parents might be trained to be more responsive to their children in the most important ways. Future studies should investigate this possibility. Because ethnic minorities may be particularly at risk for psychopathology due to factors associated with their ethnic standing, socio-economic status, and discrimination, which are known to increase child and family stress and adjustment (Canino & Spurlock, 2000; Yamamoto, Arturo-Silva, Ferrari, & Nukariya, 1997), research and intervention with this population could prove especially efficacious.

**References**


emotional expressivity and children's behavior problems and social competence: Meditation through children's regulation. Developmental Psychology, 37, 475-490.


Face Your Fears: Attentional Biases Toward Emotional Faces Depend on Specific Low-Level Anxiety Symptoms

This study investigated the effects of emotional facial expressions, social anxiety, and negative self-evaluation on attention in a nonclinical sample (N = 35). Participants completed the Self-Consciousness Scale (Fenigstein, Scheier, & Buss, 1975), the Brief Fear of Negative Evaluation Scale (Leary, 1983), and a dot-probe task that measured attentional biases for emotional facial expressions. Results showed that attentional biases for emotional faces were moderated by social anxiety, specifically the negative self-evaluation component. These findings support Rapee and Heimberg’s (1997) model of social phobia and Fenigstein et al.’s (1975) theory of social anxiety. Furthermore, they elucidate the components of social anxiety sufficient to direct visual attention and suggest that social anxiety should be controlled in future research.

In general, people are thought to possess an attentional bias for negative social stimuli (e.g., Öhman, Lundqvist, & Esteves, 2001; Pratto & John, 1991). This tendency may be adaptive because negative stimuli indicating threats may merit urgent and direct action (Pratto & John, 1991). Cognitive models of anxiety posit an exacerbation of this bias in people with anxiety (e.g., Mogg & Bradley, 1998). More specifically, Rapee and Heimberg’s (1997) model of social phobia suggests that people with social anxiety have increased attentional biases for stimuli representing rejection or aspersion. Facial stimuli clearly have social meaning and have been used to test these theories.

Curiously, research investigating the relationship between social anxiety (i.e., anxiety in response to social stimuli) and attention to threatening facial expressions has yielded more consistent findings. For example, Mogg and Bradley (2002) found greater initial biases toward angry and fearful faces among high socially anxious individuals than among low socially anxious individuals. In light of this evidence, Mogg et al. (2004) went one step further to investigate the maintenance of attention to angry faces among those who experience social phobia, testing their hypothesis...
that such individuals initially orient attention toward threatening stimuli and then quickly shift attention away from them. The researchers measured attentional bias at time points of 500 ms and 1250 ms following the presentation of angry faces. At 500 ms, they found significant initial biases for angry faces among patients with social phobia, but not among normal controls. However, neither social phobia patients nor normal controls had significant attentional biases at 1250 ms. This research suggests that social anxiety, rather than trait anxiety, may be largely responsible for the initial modulation of attention by negative emotional facial stimuli, potentially as a result of the unique match between social fear and threatening social stimuli.

Mogg and associates' (Mogg & Bradley, 2002; Mogg et al., 2004) findings suggest that social anxiety, as a single construct, plays a key role in the initial direction of attention to threatening emotional faces. However, according to Fenigstein, Scheier, and Buss (1975), social anxiety is thought to be a multifaceted construct with two component parts. Social anxiety can be conceptualized as the end result of public self-consciousness, or thinking of another’s perspective of oneself, in addition to evaluating oneself negatively. Theoretically, if people evaluate themselves positively after thinking about how other people think about them, they might not experience anxiety.

To our knowledge, no research has investigated the relations between these two components and attention to emotional facial expressions. The relation between public self-consciousness and attention may be highly variable among individuals depending on their self-images. In contrast, the relation between a negative self-evaluation and attention may be less variable, because for social anxiety to exist, self-evaluation must have already occurred. Public self-consciousness has been found to be positively (albeit weakly) correlated with social anxiety in previous studies (Fenigstein et al., 1975). Yet, it has not been controlled to determine the effect of social anxiety above and beyond the effect of public self-consciousness (i.e., the effect of negative self-evaluation) on attention.

Furthermore, past studies (e.g., Mogg & Bradley, 2002) have favored screening and selecting participants on anxiety measures prior to involvement in research; thus, this research has not shown the influence of low-level anxiety on attention. Using nonselected college students could allow the investigation of factors (e.g., social anxiety) involved in a normal sample’s performance on the standard modified dot-probe task. Knowledge of the role of low-level individual differences in normal attentional processes may be useful for future research studies.

In order to extend Mogg et al.’s (2004) findings, the present study included the Self-Consciousness Scale (SCS; Fenigstein et al., 1975) and used a college student sample. We added fearful faces to the stimuli. Based on Mogg and Bradley’s (2002) research, we predicted that a group of individuals high in social anxiety would show an attentional bias for threatening faces, whereas a group of individuals low on social anxiety would not show an attentional bias for threatening faces. Happy faces, on the other hand, would produce no group-specific attentional biases. Furthermore, when the effect of public self-consciousness on visual attention was controlled, the negative self-evaluations associated with social anxiety would moderate attentional biases in a similar fashion.

Method

Participants

Participants were 35 students or staff members at a midwestern university, 8 men and 27 women, with a mean age of 23.14 (SD = 5.33) years. There were 6 African Americans, 3 Asian Americans, 23 Caucasians, 1 Hispanic, and 2 who classified themselves as other. The research study was approved by the institutional review board at the university, and all participants gave written informed consent prior to their involvement.

Materials

Facial stimuli. The stimuli set consisted of two Caucasian faces, one male and one female, with neutral, happy, angry, and fearful facial expressions. We conducted a pilot study of 10 participants (all Caucasian) to select these 2 faces from 11 total faces. Participants rated happy, angry, and fearful emotional facial expressions for each face for emotional presence on a scale of 1 (not at all emotional) to 7 (extremely emotional). The male and female face with the highest overall average score (i.e., the mean of the mean scores for each emotional facial expression) was used in the attentional task, \( M = 5.33, SD = .25 \), and \( M = 4.83, SD = 1.35 \), respectively.

In the attentional task, each facial expression was paired for presentation with a neutral expression from the same model (i.e., man or woman) and counterbalanced between the left and right side of the computer screen for a total of 14 pairs. (Two of the neutral [i.e., filler] pairs were duplicates.) Each face was 4.5 cm wide, and the inside edge of each vertically centered face was 5.0 cm from the center of the screen. Hair was cropped

\( ^1 \) The face images used in this study are available from the MacBrain Face Stimulus Set (http://www.macbrain.org/faces/ ) and were used with permission. Development of the MacBrain Face Stimulus Set was overseen by Nim Tottenham and supported by the John D. and Catherine T. MacArthur Foundation Research Network on Early Experience and Brain Development. Please contact Nim Tottenham at tot0006@tc.umn.edu for more information concerning the stimulus set.
Reaction times were recorded.

### Brief Fear of Negative Evaluation Scale

The Brief Fear of Negative Evaluation Scale (Brief FNE; Leary, 1983) assesses discomfort associated with potential negative social evaluation. Greater scores suggest more fear of negative evaluation. The Brief FNE contains 12 statements to which participants respond 1 (not at all) to 5 (extremely) characteristic of me. We categorized the participants as having either high social anxiety (n=18) or low social anxiety (n=17) by using a median split of the Brief FNE scores.

The overall sample had a mean Brief FNE score of 35.46 (SD = 9.35); the high social anxiety group had a mean Brief FNE score of 42.72 (SD = 6.23); and the low social anxiety group had a mean Brief FNE score of 27.76 (SD = 4.71). Independent t-tests found that the groups were significantly different in Brief FNE scores, t(33) = 7.98, p < .01, d = 2.70; but did not differ in age, t(33) = .35, p = .73, d = .12; or years of education, t(33) = 1.34, p = .19, d = .45. Unless otherwise noted, an alpha level of p < .05 was used for all statistical tests.

### Self-Consciousness Scale

The Self-Consciousness Scale (SCS; Fenigstein, et al, 1975) assesses three constructs, each with a separate subscale: private self-consciousness, public self-consciousness, and social anxiety. Private self-consciousness is attention to your own thoughts and feelings; public self-consciousness is thinking of another’s perspective of oneself; and social anxiety is discomfort around others. The SCS contains 23 statements which participants indicate are extremely uncharacteristic of me. We categorized the participants as having either high social anxiety (n=18) or low social anxiety (n=17) by using a median split of the SCS.

Demographic information form. Participants reported their age, gender, race, and years of education on a demographic information form.

### Procedure

Participants initially completed a demographic information form, the SCS, and the Brief FNE. Then, during the dot-probe task, participants were seated 59 cm in front of a computer monitor and asked to respond to the location of a 7 mm target dot presented on the monitor by clicking a left or right mouse button with their dominant hand. On each trial, a fixation cross (+) was presented for 500 ms in the center of the screen. Then, one of the 14 pairs of neutral and either an angry, fearful, happy, or neutral face was simultaneously presented to both sides of the computer screen for either 500 ms or 1250 ms. Finally, following the faces, a target dot was presented to either the left or right side of the screen. The participants’ task was to indicate as quickly as possible on which side of the screen the target appeared. Reaction times were recorded.

The entire attention task consisted of 4 practice trials randomly presented once and 64 test trials randomly presented 3 times (i.e., a total of 196 trials). The 64 test trials entailed 7 conditions: (a) 8 neutral-left/angry-right trials, (b) 8 angry-left/neutral-right trials, (c) 8 neutral-left/fear-right trials, (d) 8 fear-left/neutral-right trials, (e) 8 neutral-left/happy-right trials, (f) 8 happy-left/neutral-right trials, and (g) 16 neutral-left/neutral-right (i.e., filler) trials. Neutral-left/neutral-right trials were considered divided attention trials because attention was equally divided between both stimulus locations. On the other hand, focused attention trials consisted of one emotional and one neutral stimulus. Focused attention trials were divided into congruent and incongruent types. During congruent trials the emotional stimulus was presented on the same side of the screen as the (to be presented) target. During incongruent trial types, the emotional stimulus appeared on the opposite side of the screen as the target.

### Results

#### Data Preparation

No participants had an accuracy rate approaching chance (i.e., 50%) on the dot-probe task; thus, data from all participants were included in analyses. Incorrect responses and reaction times less than 100 ms or greater than 750 ms were excluded from the data analyses because these reaction time data points were unlikely to have been made in response to the target dot (see Carlson & Reinke, 2008). In all, 3.57% of the reaction time data was omitted based on these criteria. In addition, attentional bias scores were calculated by subtracting reaction times on congruent trials from those on incongruent trials for the purpose of correlating task performance with social anxiety and self-consciousness. Positive bias scores indicate vigilance for the emotional face, whereas negative bias scores indicate avoidance of the emotional face.

#### Reaction Time Analysis of Variance

Participant reaction times were compared in a 2 x 2 x 2 x 3 mixed design analysis of variance (ANOVA) with anxiety group (high social anxiety vs. low social anxiety), trial type (congruent vs. incongruent), exposure duration (500 ms vs. 1250 ms), and face type (angry vs. fearful vs. happy) as independent variables. The ANOVA revealed that reaction times were significantly longer for faces presented for 500 ms than for faces presented for 1250 ms, M = 454.82, SD = 50.37, and M = 434.98, SD = 48.71, respectively, F(1, 33) = 43.01, p < .01, η² = .57. The main effect of anxiety group approached statistical significance, indicating that the low social anxiety group had faster reaction times than the high social anxiety group.
social anxiety group, $M = 429.37$, $SD = 41.58$, and $M = 459.36$, $SD = 51.45$, respectively, $F(1, 33) = 3.54$, $p = .07$, $\eta^2 = .10$. The main effect of face type also trended toward statistical significance, with respondents reporting slower reaction times for fearful faces, $M = 440.56$, $SD = 46.21$, slower to happy faces, $M = 445.72$, $SD = 49.55$, and slowest to angry faces, $M = 448.04$, $SD = 53.54$, $F(2, 66) = 3.03$, $p = .06$, $\eta^2 = .08$. No other statistically significant main effects were obtained.

The key Trial Type x Anxiety Group interaction was statistically significant, $F(1, 33) = 8.69$, $p = .01$, and the effect size was large, $\eta^2 = .21$ (see Figure 1). Post hoc paired $t$ tests were conducted to interpret the interaction, and the Holm’s sequential Bonferroni procedure was employed to control experimentwise error. These follow-up analyses revealed that, in the high social anxiety group, incongruent trials elicited significantly longer reaction times than congruent trials ($M = 465.01$, $SD = 54.60$, and $M = 453.70$, $SD = 49.71$, respectively, $p = .02$), but no such difference was found in the low social anxiety group, $M = 427.28$, $SD = 40.38$, and $M = 431.45$, $SD = 43.69$, respectively. No other statistically significant interaction effects were obtained.

### Social Anxiety and Public Self-Consciousness

Pearson product-moment correlations were conducted among social anxiety (Brief FNE), public self-consciousness (SCS), and attentional biases. Attentional bias was operationally defined as the difference between mean reaction times for incongruent and congruent trials. Scores on the Brief FNE were positively correlated with attentional bias scores for fearful faces at 500 ms, $r(33) = .42$, $p = .01$, as were scores on the Public Self-Consciousness subscale, $r(33) = .45$, $p = .01$. Scores on the Brief FNE were not correlated with attentional bias scores for fearful faces at 1250 ms, nor were scores on the Public Self-Consciousness subscale. Scores on the Brief FNE, however, were positively related to scores on the Public Self-Consciousness subscale of the SCS, $r(33) = .57$, $p < .01$.

### Reaction Time Analysis of Covariance

Because of the strong positive correlation between the Brief FNE scores and the Public Self-Consciousness scores, the potential effect of public self-consciousness was controlled in a $2 \times 2 \times 2$ (anxiety group) x (trial type) x (face type) mixed design analysis of covariance (ANCOVA) with reaction time as the dependent variable and Public Self-Consciousness scores as a covariate. This analysis allowed an investigation of the effect of social anxiety above and beyond the effect of public self-consciousness. Statistically significant effects involving social anxiety in this analysis are thought to represent the influence of the theoretical distinction between social anxiety and public self-consciousness: a negative evaluation of oneself. The results of the ANCOVA were virtually identical to those of the initial ANOVA. The only significant effects were a main effect of exposure duration, $F(1, 32) = 9.67$, $p < .01$, $\eta^2 = .23$, and a Trial Type x Anxiety Group interaction, $F(1, 32) = 5.63$, $p = .02$, $\eta^2 = .15$.

In sum, an ANOVA showed that incongruent trials had significantly longer reaction times than congruent trials, but only in the high social anxiety group (i.e., a Trial Type x Anxiety Group interaction). Because Brief FNE scores and Public Self-Consciousness scores had a high positive correlation, the effect of public self-consciousness was controlled in an ANCOVA. This analysis revealed that the Trial Type x Anxiety Group interaction remained statistically significant.

### Discussion

The current research predicted that people high in social anxiety would demonstrate an attentional bias for threatening emotional faces, whereas people low in social anxiety would not demonstrate an attentional bias for threatening emotional faces. Happy faces were not expected to elicit such group-specific attentional biases. Our findings support a general bias toward emotional faces, both threatening and happy, among people with social anxiety. The present study also predicted that negative self-evaluation would moderate attentional biases in a manner similar to social anxiety. Our findings support this notion.

Consistent with Rapee and Heimberg’s (1997) theory, we found evidence of an attentional bias for emotional facial expressions among individuals who were high in social anxiety (as measured by the FNE), but not among individuals who were low in social anxiety. Mogg and Bradley (2002) found similar results.
when attention toward angry and fearful faces was measured at 17 ms. The interaction of dispositional and situational variables is a potential explanation for these biases. People with dispositional social anxiety, by definition, are predisposed to experience discomfort and fear in the presence of other people (Leary, 1983). Thus, those with social anxiety likely have increased fear responses to emotional faces, even faces on a computer screen. Such an increased fear response could direct visual attention to potentially threatening stimuli, such as emotional faces. Indeed, research has shown that the amygdala (i.e., the brain’s “fear center”) responds to threatening emotional faces (Whalen et al., 1998) and directs attention to potential danger (Öhman, 2002; Palermo & Rhodes, 2007).

It is important that the interaction between social anxiety and trial type involved both positive and negative faces (i.e., angry, fearful, and happy). The current research did not demonstrate effects of face type as did Mogg and associates (Mogg & Bradley, 2002; Mogg et al., 2004). For example, Mogg and Bradley’s (2002) research showed an interaction between social anxiety and trial type only for threatening (i.e., angry and fearful) faces. We used a normal sample and did not screen and select participants on anxiety measures. In contrast, Mogg and Bradley (2002) screened their participants. Perhaps the use of a normal sample decreased the likelihood of obtaining group-specific biases for particular emotional facial expressions (i.e., an Anxiety Group x Face Type x Trial Type interaction) in the current research. Nevertheless, this study has shown that social anxiety can substantially affect the outcome of emotional dot-probe tasks in normal samples. It may be necessary to measure and adjust for this variable when investigating normal attentional processes in future studies. Furthermore, future research should involve larger samples to allow for a better understanding of the time course of attention when it is modulated by emotion.

The correlations among social anxiety, public self-consciousness, and attentional biases demonstrated the convergent validity of the Brief FNE and the Public Self-Consciousness subscale of the SCS. Not only were scores on each measure highly positively correlated, but they also correlated with attentional bias scores in a similar fashion. Importantly, individuals high on social anxiety are thought to have a fear of negative evaluation (Leary, 1983), which according to Fenigstein et al. (1975), may involve thinking of another’s perspective of oneself, in addition to evaluating oneself negatively. In essence, the perceiver with social anxiety projects his or her negative self-evaluation onto others.

The current research suggests that the evaluative component of social anxiety is sufficient to produce biased attention to emotional facial expressions. This information is useful in understanding the components of social anxiety that impact behavior and daily living. Future research could explore the effects of other psychological constructs and psychopathologies on attentional outcomes.

In sum, the current research investigated the modulation of attention by emotional facial stimuli and the influence of individual differences on this process. Consistent with previous research (e.g., Mogg & Bradley, 2002), this research indicates that social anxiety moderates the effect of emotional facial expressions on attention. Importantly, it extends the extant literature by examining the effect of negative self-evaluations on attention to emotional faces among normal university students.

References


## Psi Chi Awards and Grants

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<td>Chapter President (chapter nomination)</td>
<td>One $500 award + Travel to APA + Plaque</td>
<td>Award to one chapter president who demonstrates excellence in the leadership of the local chapter.</td>
</tr>
<tr>
<td>Allyn &amp; Bacon Psychology Awards</td>
<td>May 1</td>
<td>Undergraduate</td>
<td>1st place—$1,000 2nd place—$650 3rd place—$350</td>
<td>Awards for the overall best research papers submitted.</td>
</tr>
<tr>
<td>Guilford Undergraduate Research Awards</td>
<td>May 1</td>
<td>Undergraduate</td>
<td>1st place—$1,000 2nd place—$650 3rd place—$350</td>
<td>Awards for the overall best research papers submitted.</td>
</tr>
<tr>
<td>Faculty Advisor Research Grants</td>
<td>June 1</td>
<td>Faculty Advisor</td>
<td>Twelve $2,000 grants</td>
<td>Awards for two faculty advisors per region to conduct empirical research.</td>
</tr>
<tr>
<td>Model Chapter Awards</td>
<td>June 30</td>
<td>Chapters</td>
<td>$100 each chapter</td>
<td>All chapters meeting the five criteria will receive $100.</td>
</tr>
</tbody>
</table>

Awards and grants are submitted online at the Psi Chi website at www.psichi.org.
Chapter and Advisor Awards

Denmark Award | Dec 1
The Psi Chi/Florence L. Denmark Faculty Advisor Award is presented annually to the one Psi Chi faculty advisor who best achieves Psi Chi’s purpose. The award includes (1) travel expenses to attend the APA/Psi Chi Society Annual Convention to receive the award and (2) an engraved plaque. The award is intended to recognize Psi Chi faculty advisors for their outstanding service to the chapter and to Psi Chi.

Regional Chapter Awards | Dec 1
The Psi Chi Regional Chapter Awards provide annual recognition for up to two chapters in each region that best achieve Psi Chi’s purpose. Each winning chapter receives a check for $500 and a plaque to display in the winning chapter’s department. The awards are intended to perpetuate the chapters, to identify chapters as role models for others, and to promote the purposes of Psi Chi.

Regional Faculty Advisor Awards | Dec 1
This award is presented annually to one Psi Chi faculty advisor from each region who best achieves Psi Chi’s purpose. The award is to recognize and reward actively involved chapter advisors. The winning faculty advisor from each region will receive $500 and a plaque.

Cousins Award | Feb 1
The Psi Chi/Ruth Hubbard Cousins Chapter Award is presented annually to the one chapter that best achieves Psi Chi’s purpose. The winning chapter receives: (1) a check for $3,500, (2) travel expenses for one chapter officer to attend the APA/Psi Chi Society Annual Convention to receive the award, and (3) a plaque to display in the winning chapter’s department.

Website Awards | Feb 1
These awards are presented annually to three chapters with websites that are innovative, aesthetic, and useful, and that advance or support Psi Chi’s purpose. Winning chapters will receive awards of $200 each.

Kay Wilson Leadership Award | April 1
The Psi Chi/Kay Wilson Leadership Award for Outstanding Chapter Presidents is presented annually to the one chapter president who demonstrates excellence in leadership of the local chapter. The winning Psi Chi chapter officer receives: (1) a $500 cash award, (2) travel expenses for one chapter president to attend and make a short presentation at the APA/Psi Chi Society Annual Convention to receive the award, and (3) an engraved plaque commemorating the award.

Model Chapter Awards | June 30
Model Chapter Awards of $100 each are presented annually to recognize and reward Psi Chi chapters that consistently maintain outstanding records of membership inductions, chapter correspondence, service projects, and other criteria associated with being an outstanding chapter. All chapters submitting evidence of meeting these criteria are designated as winners.

Research Awards

Regional Research Awards | Deadlines Vary
All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the Regional Research Awards. Cash awards of $300 each are presented to students submitting the best research papers to Psi Chi sessions at regional conventions. The number of awards in each region varies based on the size of the region; a total of 78 awards of $300 each are available for the academic year. Award monies are distributed at the conventions following the presentations. Deadlines for submissions vary according to region and sometimes from year to year; check the Psi Chi website for details.

Society Annual Convention Research Awards | Dec 1
All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the Society Annual Convention Research Awards. Cash awards of $300 for undergraduates and $500 for graduates are presented to students submitting the best research for Psi Chi sessions at the APA and APS national conventions. Up to 16 awards are given: 8 for the APA Convention and 8 for the APS Convention. Award monies are distributed at the conventions following the presentations.

Bandura Award | Feb 1
All psychology graduate students who are Psi Chi members and graduate student affiliates of the Association for Psychological Science (APS) are eligible to submit their research for the Psi Chi/APS Albert Bandura Graduate Research Award. The winner receives the following: (1) travel expenses to attend the APS National Convention to receive the award, (2) a three-year membership in APS, including subscriptions to all APS journals, and (3) two engraved plaques, one for the winner and one for the winner’s psychology department as a permanent honor to the winner. In addition, the abstract of the winning paper, as well as a photograph and brief biography of the winner, are published in Eye on Psi Chi. This award is presented during the APS opening ceremony at the APS National Convention.

Newman Award | Feb 1
All psychology graduate students are eligible to submit their research for the APA/Psi Chi Society Annual Edwin B. Newman Graduate Research Award. The winner receives the following: (1) travel expenses to attend the APA/Psi Chi Society Convention to receive the award, (2) a three-year subscription to an APA journal of the winner’s choice, and (3) two engraved plaques, one for the winner and one for the winner’s psychology department as a permanent honor to the winner. In addition, the abstract of the winning paper, as well as a photograph and brief biography of the winner, are published in Eye on Psi Chi. This award is presented during the APA/APS Awards ceremony at the annual APA/Psi Chi Society Convention in August.

Allyn & Bacon Awards | May 1
The Psi Chi/Allyn & Bacon Psychology Awards, cosponsored by Allyn & Bacon Publishers, are open to all undergraduate Psi Chi members and are awarded to those who submit the best overall empirical research papers. The awards are $1,000 for first place, $650 for second place, and $350 for third place. The abstracts of the winning papers, as well as photographs and brief biographies of the top three winners, are published in Eye on Psi Chi.

Guilford Awards | May 1
All Psi Chi undergraduate members are eligible to submit their research for the Psi Chi/J. P. Guilford Undergraduate Research Awards. Cash awards are $1,000 for first place, $650 for second place, and $350 for third place. The abstracts of the winning papers, as well as photographs and brief biographies of the top three winners, are published in Eye on Psi Chi.
Research Grants

Hunt Research Grants | Oct 1
All Psi Chi student and faculty members are eligible to apply for a Thelma Hunt Research Grant. Up to three grants of up to $3,000 each are presented annually to enable members to complete empirical research that addresses a question directly related to Psi Chi. Unlike other Psi Chi award/grant programs, the Hunt Grants focus on research directly related to the mission of Psi Chi.

SuperLab Research Grants | Oct 1
All undergraduate and graduate Psi Chi members are eligible to apply for these research grants. The purpose of this program is to provide annual grants to aid one undergraduate and one graduate student in conducting computer-based research. Grant winners receive a copy of SuperLab experimental lab software and a response pad from Cedrus®.

Undergraduate Psychology Research Conference Grants | Oct 1
The purpose of this program is to provide funds for local/regional undergraduate psychology research conferences. Funding is intended for conferences that will invite student research presenters from at least three schools in the area and will notify all Psi Chi chapters in the geographic area of the conference. The maximum grant for each conference is $1,000.

Graduate Research Grants | Nov 1 & Feb 1
All graduate Psi Chi members are eligible to apply for these research grants. The purpose of this program is to provide funds for members to defray the cost of conducting a research project. Applicants may request up to $1,500 for each project. A total of $20,000 has been allotted for this student grant program.

Undergraduate Research Grants | Nov 1 & Feb 1
All undergraduate Psi Chi members are eligible to apply for these research grants. The purpose of this program is to provide annual grants to aid one undergraduate and one graduate student in conducting computer-based research. Grant winners receive a copy of SuperLab experimental lab software and a response pad from Cedrus®.

FBI NCAVC Internship Grants | Feb 1 & June 1
All undergraduate and graduate Psi Chi members who are accepted as FBI NCAVC interns are eligible to apply for this internship grant. The purpose of this program is to provide annual grants to aid two Psi Chi members in conducting research at the FBI NCAVC. Two grants up to $7,000 will be awarded annually for the 14-week unpaid position.

APS Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these grants (research must be conducted while still an undergraduate, not after graduation). The purpose of the program is to allow students to conduct research during the summer with a faculty sponsor who is a member of APS. This allows the student to partner with a faculty mentor who shares the same research interests and may work at a different institution than the student attends. Psi Chi awards six $5,000 grants (a stipend of $3,500 to the student plus $1,500 to the faculty sponsor).

CUR Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these grants (research must be conducted while still an undergraduate, not after graduation). The purpose of the program is to allow students to conduct research during the summer with a faculty sponsor who is a member of the Council of Undergraduate Research (CUR). This allows the student to partner with a faculty mentor who shares the same research interests and may work at a different institution than the student attends. Psi Chi awards two $5,000 grants (a stipend of $3,500 to the student plus $1,500 to the faculty sponsor).

SRCD Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these grants (research must be conducted while still an undergraduate, not after graduation). The purpose of the program is to allow students to conduct research during the summer with a faculty sponsor who is a member of the Society for Research in Child Development (SRCD). This allows the student to partner with a faculty mentor who shares the same research interests and may work at a different institution than the student attends. Psi Chi awards two $5,000 grants (a stipend of $3,500 to the student plus $1,500 to the faculty sponsor).

Summer Research Grants | March 1
All undergraduate Psi Chi members are eligible to apply for these summer research grants (research must be conducted while still an undergraduate, not after graduation). The purpose of this program is to provide funds for members to conduct summer research at recognized research institutions. Psi Chi will award 14 grants of $5,000 (a stipend of $3,500 to the Psi Chi student plus $1,500 to the sponsoring faculty member at the research institution each year).

Faculty Advisor Research Grants | June 1
All current faculty advisors and coadvisors who have served an active Psi Chi chapter for at least one year are eligible to apply for these faculty advisor research grants. The purpose of this program is to provide funds for advisors to defray the direct costs of conducting a research project (no stipends included). Two grants will be awarded annually within each of Psi Chi’s six regions, for a total of 12 grants. The maximum amount of each grant will be $2,000.