131 SPECIAL INVITED ARTICLE—
Publishing in the Psi Chi Journal of Undergraduate Research: A Faculty Mentor's Guide
Kirsten L. Rewey, St. Mary’s University of Minnesota
Stephen F. Davis, Emporia State University

133 Desired Characteristics of a Potential Partner as a Function of Perceived Qualities of Opposite-Sex Parent
Heather L. Fry and Harvey R. Freeman, Ohio Wesleyan University

139 Effects of Orientation and Training on Cognitive Maps
John R. Helleberg, University of Nebraska at Kearney

149 Induced Aggressive Mood and Explicit Memory
Michael J. Lang, John Carroll University

155 Evaluating Parental Stress and Parental Disciplinary Styles as Predictors of Child Maladaptive Behavior
Craig I. Springer, New York University

165 Attitudes Concerning Religion: Relationships Among Fundamentalism, Authoritarianism, Racism, and Homosexual Prejudice
Brian R. Laythe, Indiana University Southeast

173 Reviewers 174 Psi Chi Research Awards and Grants 176 Subscriptions

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Since 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.

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SPECIAL INVITED ARTICLE

Publishing in the
 Psi Chi Journal of
 Undergraduate Research:
 A Faculty Mentor’s Guide

KIRSTEN L. REWEY
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Faculty mentors are an integral component of the success
students have in publishing their research. We provide
several useful tips that will enhance this involvement.

Authors of previous guest editorials
directed their comments to students preparing
manuscripts for the Psi Chi Journal of Undergraduate Research. We direct our comments in the
present editorial to faculty members (mentors) as a
guide to help them prepare students and their manuscripts for the publication process.

Preparing the Manuscript

Most important, mentors must remember that
students do not understand the entire submission and
review process. Just as we learned during graduate
school, our Psi Chi students are learning what happens to a manuscript when it is submitted for review.
It is our job as mentors to help them through the
publication process; hence, the present paper contains
a number of hints for faculty members to facilitate the publication process.

First, students should understand the time commitment they are making. Initial review of the manu-
script will take approximately 4 to 6 weeks. Further changes or revisions will require varied amounts of
time depending on the results of the initial review,
the student’s available time, and faculty involvement
(see also Rewey, 1996). Students should understand
they are making a time commitment that may require
anywhere from 4 to 8 months from initial submission
to final publication. Student authors and mentors also
must be cognizant of future events, such as gradua-
tion, getting married, or going to work, that can
thwart the best-intentioned publication plans. Many
students leave excellent papers in the “accepted
pending submission of an acceptable revision” cat-
egory and never return to them. A good mentor can
avert this undesirable conclusion to the student’s
aspirations to publish.

Second, many students do not realize that for-
matting their papers according to the guidelines
contained in the Publication Manual of the American
Psychological Association (4th ed., 1994) is not an
“optional” portion of their submission. Students may
not understand that the real purpose behind APA for-
matting is to allow psychologists to communicate in
a standardized manner with members of the publish-
ing community: APA formatting allows a student psy-
chologist to communicate meaningfully with editors.
and the publishing staff at the Psi Chi National Office who prepare the final copy of the manuscript for publication. APA formatting is our common language and is essential for clear communication.

In addition, students and mentors may not realize that the reviewers are often experts in APA formatting. For example, both authors of this article routinely teach APA formatting to undergraduate students and, as a consequence, are likely to find deviations in a manuscript. Mentors should carefully help students identify and correct deviations from APA formatting; this means that the mentor will have to purchase the fourth edition of the *Publication Manual* and study it carefully. You cannot rely on your knowledge of earlier editions; there are numerous differences and additions (e.g., formatting the reference of an electronic document). (We plan to address common APA formatting problems in a subsequent article.)

Students also need assistance writing the cover letter that accompanies the manuscript. In particular, students should know the difference between a masked (blind) or open review so they can clearly indicate a preference in the cover letter. For example, students may feel more comfortable with a masked review because it maintains the student’s anonymity; students may feel less stress over reviewers’ comments to an anonymous author.

Furthermore, mentors and students should discuss who will receive communications regarding the manuscript during the editorial process. Discussing the chain of communications becomes very important when faculty or students are absent from campus for extended periods of time during breaks, sabbaticals, and the summer. In addition, the individual who will communicate with the editor should be clearly articulated in the cover letter. The inclusion of the corresponding author’s e-mail address will expedite communication. Mentors may want to create sample cover letters that students can use as guidelines or templates.

### Revising and Editing the Manuscript

Again, students have a general lack of knowledge about what happens during the revising and editing phase of publication. As mentors, it is our responsibility to explain and facilitate the process. Students can find insightful advice in Smith (1998) and Miller (1997); we suggest you direct students to those resources and then discuss them.

We strongly urge you to help students decide which of the reviewers’ comments should be addressed and which suggestions will be declined. In addition, mentors should help students draft a cover letter to accompany the revision. In the cover letter the author(s) should describe what actions they took during the revision process; which comments were addressed, and how, and which suggestions were declined and why. The cover letter will be used by the reviewers during the assessment of the revised manuscript.

### Conclusions

In summary, student psychologists lack specific knowledge of the publication process. Faculty mentors can enhance learning and facilitate students' success by discussing key issues in the publication process such as time commitments and communication, assisting students to write professional cover letters, monitoring students’ application of APA format, and helping students decide how to utilize reviewers’ comments to improve the manuscript.

### References

Desired Characteristics of a Potential Partner as a Function of Perceived Qualities of Opposite-Sex Parent

The influence of the perceived quality of the relationship between an individual and the opposite-sex parent on the characteristics desired in a potential mate was examined. One hundred and twenty male and female college students completed a questionnaire in which they rated 3 targets (typical opposite-sex parent, their own opposite-sex parent, and their ideal partner) on a 10-item measure of personal qualities. Participants’ perceived quality of relationship with their opposite-sex parent was assessed using a 4-item measure. Both men and women who perceived the relationship with their opposite-sex parent to be of high quality rated their parent and ideal partner more similarly than did men and women who perceived their relationship to be of low quality. A tendency for participants with perceived high-quality relationships to idealize their opposite-sex parents (i.e., rate them more positively than the typical opposite-sex parent) approached significance. Women who perceived high-quality relationships with their fathers were the only group to view their opposite-sex parent more positively than the typical opposite-sex parent and the ideal partner.

Krueger and Caspi (1993) examined the “ideal partner hypothesis,” that people determine the attractiveness of others not by making reference to themselves, but by comparing the other to an abstract ideal about which there is a general consensus. They demonstrated that the pursuit of an ideal is important in determining the attractiveness of a potential mate. Hester (1996) found that conceptualizing the ideal romantic partner defines a standard that is important not only in evaluating potential mates, but also in determining whether a relationship is satisfying.

The research clearly suggests that the construction of an ideal partner increases the likelihood of satisfaction in relationships. Attraction would be related to the extent to which a potential mate is similar to an individual’s “ideal” construct, whereas dissimilarity would lead to repulsion. The repulsion hypothesis (Rosenbaum, 1986, as cited in Krueger & Caspi, 1993) states that individuals eliminate from consideration as potential mates those persons who possess very different attitudes from themselves, thus reducing the potential for conflict.

Although the ideal partner hypothesis as well as the repulsion hypothesis provides insight on how individuals select a partner, neither examines the source of this ideal person. A possible source is one’s par-
Desired Characteristics of a Potential Partner

Fry and Freeman

The role of the opposite-sex parent is of special interest when examining parental influence on the child’s interpersonal relations. Several accounts provide evidence for the influence of mother–son interactions on the son’s interpersonal relationships. A longitudinal study conducted by Rice and Mulkeen (1995) focused on intimacy in adolescent–parent and adolescent–friend relationships. Intimacy was defined broadly as the adolescent’s perceived emotional involvement in each of the relationships, which were examined from early adolescence to early adulthood. Results indicated the powerful effects of the opposite-sex parent on social interaction; the son’s intimacy level with his mother was the only significant predictor of the quality of his relationships with same and opposite-sex peers as a young adult. Evidence from Wenk, Hardesty, Morgan, and Blair (1994) demonstrated that receiving adequate love from mothers had a larger effect on the self-esteem and life satisfaction of sons than daughters.

The significance of the father–daughter dyad has also been the focus of much research. Rice and Mulkeen (1995) found girls’ intimacy with their fathers to be more important than intimacy with their mothers in predicting the success of peer relationships. Similarly, feeling close to their father had a significant positive effect on girls’ self-esteem and life satisfaction. Girls who reported receiving sufficient love from their fathers or who reported spending adequate time with their fathers were mentally healthier than those who did not (Wenk et al., 1994).

Research by Fullinwider-Bush and Jacobvitz (1993) exploring the links between differential qualities of family connectedness and young adult females’ development of an independent identity demonstrated the impact of parent–child boundary dissolution. Boundary dissolution occurs when there is parent–child reversal, such as the parent expecting the child to listen to his or her problems, provide encouragement and affection, and empathize with his or her feelings without the parent providing the child with guidance and support.

Fullinwider-Bush and Jacobvitz (1993) found that women who experienced boundary dissolution with their mothers were significantly less likely to be identity diffused, whereas women experiencing boundary dissolution with their fathers were more likely to report a high state of identity diffusion. Identity diffusion is characterized by avoidance of self-relevant information, indifference toward establishing any sense of identity, and minimal exploration and commitment to a system of beliefs or values. Fullinwider-Bush and Jacobvitz found parent–child boundary dissolution to be related to the child’s intimate relationships, but not to friendships. Perhaps the existence of parent–child boundary dissolution hinders a child’s desire or ability to develop stable, intimate relationships that are compatible with his or her identity. The presence of boundary dissolution in the opposite-sex parent–child relationship may negatively influence the child’s construction of an “ideal” standard with which to evaluate potential mates.

The convergence between research on seeking an “ideal” partner and the evidence for the influential nature of the mother–son and father–daughter dyad in affecting the child’s interpersonal relationships is the basis for the current study. The present study investigates whether the perceived quality of the opposite-sex parent–child relationship influences the characteristics the child desires in a potential mate. Children who perceive high-quality relationships with their opposite-sex parent should perceive that parent’s characteristics as the “ideal,” and subsequently use them as the standard a potential partner must meet. It was hypothesized that sons and daughters perceiving high-quality relationships with their opposite-sex parent will be more likely to seek a mate with characteristics similar to that parent than will sons and daughters who perceive low-quality relationships with their opposite-sex parent. It was also hypothesized that participants perceiving a high-quality relationship with their opposite-sex parent will consider their parent’s characteristics to be more positive than the characteristics of the “typical” opposite-sex parent.

Method

Participants

Participants (N = 120; women = 68, men = 52) consisted of undergraduate students ranging in age from 18 to 23 years (M = 19.67, SD = .961) enrolled in Introductory Psychology, Personal Adjustment, and Personality and Assessment courses at a small, midwestern liberal arts university. Students enrolled in the Introductory Psychology course received research
credit for participation. Only upper-class students participated because they are likely to be older than 1st-year students and thus be closer to the time of mate selection. Because the study involved a comparison between the perceived traits of a participant’s opposite-sex parent and his or her ideal partner, all participants were heterosexual. The data of seven participants (women = 2, men = 5) were excluded from analysis because they had lived with their opposite-sex parent for less than 5 years, thus making it difficult to assess accurately the quality of the relationship with that parent.

Materials and Procedure

Demographic Questionnaire. A five-page hand-out was given to each participant. The first page consisted of a set of instructions and four demographic questions. The instructions informed the participants that the present study was examining various aspects of relationships, particularly parent–child relationships. The demographic questions included the sex, year (sophomore, junior, or senior), and age of each respondent. Participants were asked whether they were currently living with, or had ever lived with, their opposite-sex parent, and if so, for how many years. Participants were informed that this person might or might not have a biological relation to themselves. Participants were also asked how old they were when they lived with their opposite-sex parent.

Target Questionnaire. Participants’ perceptions of three targets (typical opposite-sex parent, their own opposite-sex parent, and their ideal partner) were assessed. The typical opposite-sex parent was defined as possessing the traits or attributes the participants believed to be most descriptive of the general population of mothers or fathers. Participants were asked to describe their own unique perception of their ideal partner, rather than a cultural ideal or standard. A 10-item measure of positive qualities modeled after the Self-Attributes Questionnaire (Pelham & Swann, 1989) was used to assess participants’ perceptions of the three targets. These qualities were: intellectual/academic ability, social skills/social competence, artistic or musical ability, competency or skill at sports, physical attractiveness, leadership ability, common sense, emotional stability, wealth/economic stability, and sense of humor. Participants rated how characteristic each trait was of each target on a 7-point scale, with 1 = not at all and 7 = very much. The order of target ratings was partially counterbalanced across participants.

Quality of Relationship Questionnaire. A 4-item questionnaire was used to assess participants’ perceived quality of relationship with their opposite-sex parent. The items, taken from Wenk et al. (1994) and Murray et al. (1996), were “How close do you feel to your father (mother)-figure?” with responses ranging from 1 = not very close to 4 = extremely close; “Does your father (mother)-figure give you the right amount of love?” with responses ranging from 1 = much less than right amount to 4 = right amount or more; “How much do you want to be like your father (mother)-figure?” with responses ranging from 1 = not at all like to 4 = very much like; and “How happy are you with your relationship with your father (mother)-figure?” with responses ranging from 1 = not happy to 4 = completely happy.

Results

Two values were calculated to assess the degree of similarity among the three target rating scores (typical opposite-sex parent, own opposite-sex parent, and ideal partner) of each participant. The ideal difference score (IDS) was calculated by subtracting the sum of the opposite-sex parent ratings from the sum of the ideal partner ratings. The parent difference score (PDS) was calculated by subtracting the sum of the typical parent ratings from the sum of the opposite-sex parent ratings.

The IDS measured the extent to which participants’ rating of their ideal partner differed from their rating of their opposite-sex parent. A positive IDS was produced when participants rated their ideal partner more favorably than their opposite-sex parent, and a negative IDS was attained when participants rated their ideal partner less favorably than their opposite-sex parent. The PDS measured the extent to which participants’ rating of their opposite-sex parent differed from their rating of the typical opposite-sex parent. A positive PDS was produced when participants rated their opposite-sex parent more favorably than the typical opposite-sex parent, and a negative PDS was attained when participants rated their opposite-sex parent less favorably than the typical opposite-sex parent.

To test the hypotheses concerning the quality of relationship shared with the opposite-sex parent, a multivariate analysis of variance (MANOVA) was computed with participant sex (male or female) and quality of relationship (high or low, as determined by a median split on the Quality of Relationship Questionnaire) serving as the independent variables. Scores on the IDS and PDS were the dependent variables. The MANOVA yielded a significant main effect for both sex, F(2, 108) = 11.85, p = .001, and quality of relationship, F(2, 108) = 10.19, p = .002. No significant interaction effect was observed, F(2, 108) = 2.29, p = .133. Univariate F tests showed that the significant effect of sex held for IDS, F(1, 109) = 11.85,
p = .001, with men (M = 4.91) having a higher IDS than women (M = .82), but not for the PDS, F(1, 109) = .66, p = .417. Univariate F tests revealed the significant effect of the quality of relationship held for IDS, F(1, 109) = 10.19, p = .002, with low-quality relationships (M = 4.65) having a higher IDS than high-quality relationships (M = .77). PDS approached significance, F(1, 109) = 3.14, p = .079, with high-quality relationships (M = 2.00) having a higher PDS than low-quality relationships (M = 1.22).

Due to the fact that IDS and PDS each involved ratings of two different variables, two additional MANOVAs were computed to determine the source of the significant effects. For IDS, sex remained the independent variable, and the sum of ratings of the ideal partner and the opposite-sex parent served as the dependent variables. The MANOVA yielded a significant main effect, F(2, 110) = 4.95, p = .003. Univariate F tests revealed that there was a significant effect for the opposite-sex parent ratings, F(1, 111) = 8.91, p = .003, with women rating their primary father-figures higher (M = 52.25) than men rated their primary mother-figures (M = 48.11), but not for the ideal ratings score, F(1, 111) = .014, p = .906 (M = 53.17 and 53.02 for women and men, respectively).

A subsequent MANOVA examined the source of the significant effects for IDS and PDS, with quality of relationship serving as the independent variable, and the sums of the ideal partner rating, opposite-sex parent rating, and typical parent rating serving as the dependent variables. A significant main effect was observed, F(2, 110) = 6.94, p = .001. Univariate F tests showed that there was a significant effect for the opposite-sex parent rating score, F(1, 111) = 20.92, p = .001, with high-quality relationships having a higher rating (M = 53.35) than low-quality relationships (M = 47.22). The ideal partner ratings approached significance, F(1, 111) = 3.58, p = .061, with M = 51.86 and M = 54.13 for low- and high-quality relationships, respectively. Similarly, the typical parent rating approached significance, F(1, 111) = 3.19, p = .077, with means of 47.22 and 53.35 for low- and high-quality relationships, respectively.

Although no significant interaction effect between quality of relationship and sex was observed for IDS or PDS, examination of Table 1 reveals that the only group that rated their own parent higher than their ideal partner was women with high-quality opposite-sex parent relationships. Similarly, the only group that rated their own parent higher than the typical opposite-sex parent was women with high-quality opposite-sex parent relationships.

**Discussion**

The degree to which the perceived characteristics of the opposite-sex parent influence the characteristics desired by a child in his or her potential partner was hypothesized to be a function of the quality of the parental relationship as perceived by the child. This hypothesis was confirmed; both men and women who perceived the relationship with their opposite-sex parent to be of high quality rated their parent and ideal partner more similarly than did men and women who perceived their opposite-sex parent relationship to be of low quality.

These findings support past research (Murray et al., 1996) examining idealization and satisfaction in relationships. Because an individual's “ideal” is not necessarily related to a partner’s actual qualities, it is plausible that a good relation with one’s opposite-sex parent leads to the perception of that parent as an “ideal” prototype for a prospective life partner. Murray et al. (1996) suggested that feelings of satisfaction reflect an intimate’s ability to see imperfect
Desired Characteristics of a Potential Partner

partners in idealized ways. This suggestion is supported by the finding that opposite-sex parents were rated higher than ideal partners when a high-quality relationship was perceived. Finding a prospective mate whose characteristics approximate those of the idealized parent may cause a person to expect that the prospective mate would bring similar feelings of satisfaction to a relationship. Thus, the perceived traits of an idealized opposite-sex parent become the standard on which a potential partner is evaluated.

Interestingly, women with perceived high-quality relationships with their fathers viewed their opposite-sex parent more positively than either the typical father or their ideal partner. A similar effect was not observed for men. Gender socialization may account for this result. Because women are often expected to become independent of their families at an older age than are men, women may be more likely to relate to their parent in a more dependent and attached manner as young adults. Men may be aware that a high- or low-quality relationship exists with their opposite-sex parent, but due to their quest for independence from family, they may be more reluctant to acknowledge that they are seeking a mate who resembles their opposite-sex parent.

Regardless of the sex-specific trends, patterns of both Rosenbaum’s (1986, as cited in Kreuger & Caspi, 1993) ideal partner and repulsion hypotheses are reflected in the present study in the high-quality and low-quality relationships, respectively. Murray et al. (1996) argued that seeing one’s partner as an ideal may create an internal peace that erases doubts, secures satisfaction, and provides comfort derived from the thought of possessing a caregiver who mirrors one’s hopes. Men and women who feel that their opposite-sex parent fulfills such needs will likely perceive a high-quality relationship with that parent and seek a potential mate who shares the same characteristics of the opposite-sex parent in hopes of eliciting emotions similar to those experienced in the high-quality opposite-sex parent relationship. The results also support the repulsion hypothesis; emotions associated with experiences common in a low-quality relationship are more likely to be negative. The perceived characteristics associated with such emotions are thereby less likely to be sought in a potential partner.

Perceived unconditional positive regard from the opposite-sex parent may also contribute to the tendency of an individual to seek characteristics in a mate that are similar to those of a parent. Parents are often the primary providers of unconditional positive regard, and frequently see the best in their children despite their imperfections. The sense of being loved and accepted despite one’s faults and shortcomings, rather than the emotions associated with specific experiences with the parent, may be the motivator to pursue characteristics in a mate that are similar to those of the opposite-sex parent.

Although the findings of the present study support previous research regarding the importance of opposite-sex parent relationships, limitations to this investigation exist. The participants were not a representative sample as they consisted of students from predominately upper middle and upper socioeconomic classes enrolled in upper level psychology courses. In addition, research (Hester, 1996) suggests that lifespan shifts of desired characteristics in an ideal romantic partner may exist, and future research should consider such developmental changes by pursuing longitudinal studies. Future investigators should seek balanced sex samples and vary participant’s sexual orientation (heterosexual, homosexual, bisexual) to determine if sex findings differ across sexual orientation. Future research should also explore the ratings of specific traits as a function of sex, quality of opposite-sex parent relationship, and socioeconomic class to delineate more specifically the influence of opposite-sex parents on interpersonal relationships.

References


Two experiments studied orientation effects on cognitive mapping. Experiment 1 used a $4 \times 3$ within-subjects factorial design, with 12 participants, following the procedure of Levine, Jankovic, and Palij (1982). Participants were taught a map by finger tracing, then were tested on either an unaltered map, a $180^\circ$-rotated version, or an unaltered version viewed from a new $180^\circ$ perspective. Results replicated the Levine et al. data, but the map-rotation condition showed more errors on reverse than forward-movement types. Experiment 2, with 36 participants, added a pre/posttest, training period, and modified procedure. Experiment 1 was replicated, and the modified procedure improved performance when participants rotated the map. Training was ineffective, but some practice improvements on the posttest were found. The present studies’ anomaly with reverse-movement types offers only limited support for Levine et al.’s principle of equiavailability.

Bell, Fisher, Baum, and Greene (1990) provided a good general working definition for cognitive maps: “Simply stated, a cognitive map is a mental framework that holds some representation of the spatial arrangement of the physical environment . . . Cognitive maps are a very personal representation of the familiar environment that we all experience” (pp. 60–61). Researchers study cognitive maps for several practical purposes: to understand how people navigate in a complex environment, to design maps that are more functional and easier to comprehend, or to examine the variability in people’s wayfinding abilities. The study of cognitive maps also has theoretical relevance concerning the nature of the mental representation of the spatial information. For example, Klatzky et al. (1990) walked blindfolded participants through a set of complex pathways to test the hypothesis that participants mainly use a cognitive map for wayfinding. The participants were placed on a starting point and then led from point to point across a complex pathway. At the end of the pathway, the researcher instructed the participant to return to the point where the path began. All participants attempted three levels of complexity and two size scales. The presence of typical cognitive map distortions, such as assuming symmetry where it is only approximate, or assimilating near-right angles to $90^\circ$, supported the cognitive map hypothesis.

The Klatzky et al. (1990) research indicated that people commonly use a mental approximation of their environment for wayfinding. The implications suggest that people have a holistic representation of their environment which allows them to quickly become efficient wayfinders in new environments. However, researchers do not fully understand the process by which people acquire and use cognitive maps. A number of different researchers have examined this process by isolating various factors and examining their effects on cognitive mapping skills.
Levine, Jankovic, and Palij (1982) used a novel cognitive mapping task in their research. They taught blindfolded participants a tabletop path consisting of four sequentially ordered points, by tracing over the points with the participant’s finger. They then asked the participants to take a shortcut from one point to another (e.g., from Point 1 to Point 3), creating a new path the participants had not physically traveled. Figure 1 shows an example of a typical path. The researchers hypothesized that the participants would integrate each point of the path into a picture-like mental image. This image would allow the participants to take the shortcut equally as well as the originally learned route, i.e., the principle of equiavailability. Support for this hypothesis would indicate that participants used a cognitive map instead of other means for wayfinding. They used both tabletop/fingertip and floor/walking maps to test their hypotheses, and obtained similar results with both scales of map size. Levine et al. showed the principle of equiavailability across the four movement types they used: Simple Forward (SF), Simple Reverse (SR), Forward Cut (FC), and Reverse Cut (RC). In the SF movement type, the experimenter asked the participant to repeat one of the originally learned movements (e.g., Point 1 to Point 2); the SR-movement type was identical, except the participant moved backward (e.g., Point 2 to Point 1). In the FC-movement type, the experimenter asked the participant to move forward directly to another point across a route not previously taken (e.g., Point 1 to Point 3); the RC-movement type was identical except the participant moved backward (e.g., Point 3 to Point 1).

Levine et al. (1982) also addressed the effects of orientation on participants’ ability to navigate in an unfamiliar environment. The authors suggested that cognitive maps are picturelike. One property of a picturelike representation is that it has a particular orientation. The researchers hypothesized that participants would have difficulty navigating when the learned map’s orientation did not match the orientation of the map used for testing. The experimenters taught blindfolded participants a path of points with a particular orientation, and then tested the participants’ ability to traverse from one point to another using the cognitive map they had learned. The path to be traversed was either aligned with the way they learned it or contraligned (reversed 180°). As was expected, the participants had more difficulty locating a target point when the path was contraligned (reversed 180°) than when the path was aligned with their learned cognitive map. Levine et al. called this finding the orientation corollary. The fact that participants’ performance was degraded when the learned-map and test-map orientations differed suggests that participants were using a picturelike representation for wayfinding in this task. This finding further supports the theory that participants use a cognitive map for wayfinding.

Aretz (1991) found that different orientations of electronic maps in aircraft significantly affected the pilot’s ability to develop and use cognitive maps for navigation. He found that mentally rotating a previously learned cognitive map caused errors in subsequent tasks involving that map. One possible explanation for this finding is that, once the map was rotated, participants were confused about how the rotation affected the locations of the important landmarks.

Wall, Karl, and Smigiel (1986) investigated the hypothesis that presentation order and context affect cognitive mapping. They found that remembering compass directions was the hardest aspect of map learning. Maki, Maki, and Marsh (1977) showed that right–left takes more time to discriminate than up–down. Carreiras and Gaerling (1990) extended this research and found that east–west was more difficult.
than north–south because of this right–left effect. This trouble with compass directions could help to explain why the mental rotation of a previously learned aircraft map caused difficulty for the participants in the Aretz (1991) study. This cost associated with using right–left and east–west for wayfinding suggests that cognitive mapping should be studied in a context in which compass directions are not involved.

The above studies highlight the need for new research that would control for these variables that cause distortion, while also further examining how orientation affects cognitive maps. A better understanding of why certain orientations cause cognitive maps to become distorted would be beneficial for both applied and basic reasons. For example, in the design of wayfinding aids, it would be helpful to fully understand how to minimize the confusion that different orientations create. Although the standard procedure places North at the top of a map, this orientation is not always optimal. Therefore, by studying the processes involved in the development of cognitive maps, the ideal cues with which to inform the reader of the correct orientation might be developed. Experiment 1 had two main goals. The first was to replicate Levine et al.’s (1982) data (showing support for the principle of equiavailability). The second was to improve performance on a map-rotation task. Experiment 2 had three main goals: to replicate the findings from Experiment 1, to address procedural problems revealed in Experiment 1, and to test a training procedure’s effectiveness in improving participants’ performance under map-rotation conditions.

**Experiment 1**

Experiment 1 attempted to replicate the research of Levine et al. (1982) by employing their method of using tabletop fingertip maps to test the principle of equiavailability and the orientation corollary described above. The control condition used the same design as the equiavailability experiments conducted by Levine et al. In addition, this study extended their research into the effects of orientation by adding two additional conditions, both of which changed the participant’s orientation to the map by 180° from the way in which it was learned. In one condition, the experimenter rotated the map, and in the other, the experimenter asked the participant to move to the opposite side of the table (participant move). I hypothesized that both of the reorientation conditions would be more difficult than the control condition, and that the condition in which the participant moved would be less difficult than the map-rotation condition. It was expected that when the experimenter rotated the map, the participants would only have two mental orientations. The first mental orientation would be the originally learned map, and the second would be the 180°-rotated orientation described by the experimenter. However in the participant-move condition, the participants could obtain feedback from their bodies about their orientation in relation to the map. This information would allow them to continuously update their mental picture while they moved, leading to the expectation that performance would not be as degraded.

**Method**

**Participants.** The 12 participants, 5 men and 7 women, were introductory psychology students at a midwestern regional state university. As an incentive, the participants received partial course credit for participation in the three experimental conditions.

**Design.** The experimental design used was a 4 (Movement Type) × 3 (Map Orientation) factorial, completely within-subjects. One independent variable was movement type, whether Simple Forward, Simple Reverse, Forward Cut, or Reverse Cut. The other independent variable was map orientation. The map was either not rotated (control) or reoriented 180° in one of two ways, either by the experimenter turning the paper (map rotation) or by the participant walking to the opposite side of the table (participant move). The experimenter obtained the dependent measure by measuring the distance between the target point and the end of the participant’s movement, which yielded a single number to represent error.

**Apparatus and Materials.** Forty-two different four-point paths were constructed, 36 of which appeared in the experimental proper; the participants used the remaining 6 paths for practice. The point-to-point paths were drawn on 216-mm × 279-mm paper, one path per sheet (see Figure 1). The four movement types were the same as those used by Levine et al. (1982). The paths were drawn in an irregular pattern, with the following requirements: That the distance between the starting point and the target point was always 80 mm, and that the four movement types (that determined which points were 80 mm apart) were used nine times each. The 36 experimental paths comprised three equal blocks, thus providing 12 paths for each of the three conditions. Within each block of 12 paths, the four movement types were presented three times each in a random order that was predetermined and the same for all participants. Participants used a pencil to indicate their movement on each trial. The experimenter retained the stack of maps on a standard-sized clipboard while the participant was performing the task. A predetermined, completely counterbalanced order for presentation of the three conditions was used.
**Procedure.** The experimenter began by asking the participant to read and sign an informed consent form. A general explanation of the testing procedure followed. Preceding each of the three conditions, the participant completed two practice trials, the first with no blindfold and the second identical to an experimental trial. Participants then completed the 36 experimental trials (three blocks of 12). For each experimental trial, in the control condition, the blindfolded participant was taught a four-point path. Teaching of the path was done by the experimenter taking the participant’s index finger of the preferred hand, and tracing the map while announcing the position of each point. Within each block of 12 trials the four movement types (SF, SR, FC, and RC) were tested three times each. The experimenter recorded the participant’s movement by placing a pencil on a certain point and asking the participant to move the pencil directly to another specified point, leaving a drawn line to be scored afterward. In the other two conditions, the procedures were identical to the control condition described above, except that, after learning the map the participant either moved to the other side of the table (participant move) or the map was rotated by the experimenter 180° (map rotation). The entire procedure took approximately 45 min. Debriefing followed the last trial.

**Results**

Participants’ maps were scored by measuring the distance between the target point and the end of the participant’s movement, yielding a single number to represent error. The range of error for all participants was 0–183 mm. The data were initially analyzed with a two-way within-subjects ANOVA.

There was a significant main effect of movement type when the scores from all three conditions were combined, $F(3, 33) = 3.35, \text{MSE} = 466.3, p < .05$. Using the Tukey Honestly Significant Difference (HSD) test, the SF movement was significantly different (less error) from the RC movement (more error) at the .05 level.

There was a significant main effect of orientation, $F(2, 22) = 30.74, \text{MSE} = 687.3, p < .01$, showing differences among the three conditions. Figure 2 shows that the two reorientation conditions were more difficult than the control, and that the control and participant-move conditions demonstrated the principle of equiavailability. Using Tukey’s HSD, performance in the control condition was significantly ($p < .01$)
more accurate than both of the other conditions. The map-rotation and participant-move conditions were not significantly different from each other.

There was a significant interaction between movement type and orientation, $F(6, 66) = 2.30, MSE = 415.0, p < .05$. The mean error scores for each of the three conditions (see Figure 2) indicates that the two reverse-movement types were more difficult than the two forward-movement types, but only in the map-rotation condition. Post hoc analysis revealed a simple main effect of movement type for the map-rotation condition, $F(3, 33) = 3.80, MSE = 588.8, p < .05$. There was no simple main effect of movement type for the control condition, $F(3, 33) = 1.00, MSE = 164.3, p > .05$, nor for the participant-move condition, $F(3, 33) = 2.00, MSE = 543.3, p > .05$.

Discussion

In Experiment 1, an unexpected significant interaction was found between movement type and orientation. Further analysis showed that errors were greater in the reverse movement types only for the map-rotation condition. This effect may be attributed to the two mental orientations the participant was given in the map-rotation condition. The first mental orientation is the originally learned map, and the second is the 180°-rotated orientation (the reoriented map on which the participants were tested) described by the experimenter, which contains less information than either the control or the participant-move conditions. The fact that errors increased when participants were asked to reverse a previously learned movement based on only two mental orientations, suggests the information which is missing in the map-rotation condition is critical for the accurate use of a cognitive map. This lack of information may therefore make the reverse-movement types more confusing than the forward movements by not allowing participants to update their cognitive map as they move.

The hypotheses that the principle of equivailability would be demonstrated in the control condition, and that both reorientation conditions would be more difficult than the control condition were supported, thus replicating the Levine et al. (1982) study. These findings support the use of a cognitive map by participants, and demonstrate that map orientation has a significant effect on the ability to traverse a recently learned, but unfamiliar environment. The hypothesis that the participant-move condition would be less difficult than the map-rotation condition was not demonstrated. It appears that the reorientation conditions are equally difficult. These results may be confounded due to the participants’ difficulty navigating from one side of the table to the other while blindfolded. Another possible confounding factor in this experiment was the difference between the method for learning the map (finger tracing) and the method for recording the participants’ response (pencil drawing). This procedure was the same for all participants in all conditions, so that confounding effects would be minimized.

Experiment 2

By assessing participants’ performance using a pretest and posttest, adding two training conditions, and addressing procedural issues, Experiment 2 sought to replicate and extend the findings of Experiment 1. Adding a pretest and posttest allowed for an assessment of the training procedures’ effectiveness, allowed for a replication of the results obtained in Experiment 1, and addressed procedural issues of that experiment. The performance assessment was essentially identical to the procedures from Experiment 1, except that participants were allowed to turn the map, instead of moving around it, and to touch the side of the map with their nonpreferred hand, while learning the map and drawing their line.

The use of two dependent measures increased the sensitivity of the measurement over the single measure used in Experiment 1. The dependent measure from Experiment 1 combined both angle and distance errors, yielding a single number to represent error. In Experiment 2, angle errors and distance errors were obtained and evaluated separately.

Two training conditions and a no-training control explored whether participants’ performance on mental-rotation tasks could be improved with training. During training participants attempted to draw a figure similar to one portrayed for them on a television screen. The figure they attempted to draw was either aligned with their orientation or upside down. This type of training task was expected to help participants learn to mentally rotate figures, which should aid participants in reorienting a previously learned map. It was hypothesized that both the aligned and control training conditions would replicate Experiment 1 and that the upside-down training would improve participants’ performance on the posttest in the map-rotation condition.

Method

Participants. The 36 participants, 11 men and 25 women, were introductory psychology students at a midwestern regional state university. As an incentive, the participants received partial course credit for participation.

Design. The experimental design used was a 4 (Movement Type) × 3 (Map Orientation) × 2 (Time
of Testing) × 3 (Type of Training) design, with three within-subjects independent variables and one between-subjects independent variable. One of the three within-subjects independent variables was map orientation. The map was either not rotated (control) or reoriented 180° in one of two ways, either by the experimenter turning the paper (map rotation) or by the participants turning the paper themselves (participant rotation). Another independent variable was movement type, whether SF, SR, FC, or RC. The third within-subjects independent variable was time of testing: pretest and posttest. Each test was identical to the procedures used in Experiment 1 except that in the participant-move condition, instead of walking around the table to get to the other side of the map, participants simply rotated the map themselves. Also, in all conditions, participants were allowed to rest their nonpreferred hand on the edge of the maps during training and while drawing their line.

The between-subjects variable involved three training conditions. In one training condition, participants viewed a videotape depicting figures being drawn from the participant’s own perspective, which yielded an upright view of the figures. In the second training condition, participants viewed a videotape depicting the same figures being drawn from a perspective that was opposite from the participant’s own perspective, which yielded an upside-down view of the figures. After viewing one of the videotapes, the participants reproduced the figures, one at a time, in the correct orientation, which was from the perspective of the person on the tape, who was drawing them. The third training condition was a neutral videotape depicting figures being drawn from a perspective that approximately matched the other two training tapes in length. This tape was a control and consisted of a short documentary describing anterograde amnesia. The above figure-drawing procedure was for training only, and none of these data were retained.

Two dependent variables were recorded. The length of each line the participants drew, during pre- and posttests, was measured to obtain a distance-estimation score. The other dependent variable was the number of degrees of the angle, formed between the end of the participant’s line, drawn during pre- and posttests, and the target point.

**Apparatus and materials.** Materials were identical to those used in Experiment 1, except for the addition of a videotape and eraser board for the training conditions. Two videotapes were recorded simultaneously, using two standard VHS camcorders focused on the same area of a desk. One camcorder, which yielded an upright view of the figures, was placed so as to be recording over the shoulder of the person drawing the figures. The other camcorder, which yielded an upside-down view of the figures, was placed across from the person drawing the figures. The tapes were then edited onto one standard videocassette, with 25 figures for each condition, which was used in the training conditions. The figure was presented while being drawn, which took approximately 10 s; then the participant was allowed 10 s to draw the figure. Total time of the tape was approximately 500 s. A standard 485-mm color television and standard videocassette player presented the two training video tapes. Participants in the no-training control condition viewed a third videotape, which took approximately the same length of time as each training condition. In the two training conditions, participants reproduced the figures they viewed, on a 550-mm × 550-mm white eraser board placed flat on a desk. Participants reproduced the figures within a 216-mm × 279-mm area that was marked with masking tape. A standard eraser board pen and eraser were used to produce and remove the figures.

**Procedure.** The experimenter began by asking the participant to read and sign an informed consent form. A general explanation of the testing procedure followed. The pretest was identical to Experiment 1, except for the changes outlined above. Following the pretest, participants engaged in one of three training procedures, according to a predetermined random order. The experimenter asked the participant to move from the testing table to the training table and explained the training procedure. Participants then viewed one of the training videotapes and reproduced the figures presented. After each figure was produced, the experimenter showed the participant the correct answer and then asked the participant to erase the figure and prepare for the next one. The participants in the no-training control condition viewed only the neutral videotape. Following training, the participants completed the posttest, which, as described above, was identical to the pretest. The entire procedure took approximately 60 min. Debriefing followed the last trial.

**Results and Discussion**

A Pearson product-moment correlation analysis was performed between the two dependent measures on both the pre- and posttests. The two dependent measures were not correlated with each other on the pretest, $r = .18$, $n_s$, and the posttest, $r = .14$, $n_s$. The distance and angle errors were analyzed with two separate four-way mixed ANOVAs. These results are considered separately.

**Distance error analysis.** Participants’ maps were scored by measuring the distance from the start of their line to the end of their line, yielding a distance.
score. The distance to the target point was 80 mm on all maps; therefore, a score of 80 mm indicated a correct estimation of distance to the target point. Participants’ scores ranged from 23 mm to 188 mm of line length.

The distance estimation analysis yielded a significant main effect of movement type, when the pre/posttest, training, and orientation conditions were combined, \( F(3, 99) = 20.14, \text{MSE} = 192.4, p < .05 \). Figure 3 shows that the FC movement was consistently overestimated in all orientation conditions, and that the RC movement was overestimated in the map-rotation and participant-rotation conditions. Tukey’s HSD tests indicated the FC movement was significantly \((p < .01)\) different from the other movement types, and the RC movement was significantly \((p < .05)\) different from the SR movement. This difference between the movement types might be due to the fact that participants had to travel across a path they had not yet traveled in the cut-movement types; this behavior might have resulted in overestimation because of unfamiliarity.

There was also a significant main effect of time of testing, \( F(1, 33) = 6.16, \text{MSE} = 245.0, p < .05 \). The participants overestimated line length more on the posttest than on the pretest. This result may be attributable to either the participants becoming more confident in their ability to estimate distance or to fatigue. There were no main effects for either the training or the orientation conditions.

There was a significant interaction between movement type and orientation, \( F(6, 198) = 4.32, \text{MSE} = 135.9, p < .01 \). Figure 3 shows the mean distance scores broken down into each of the four movement types and each of the three orientation conditions. Post hoc analysis revealed a simple main effect of movement type for the control condition, \( F(3, 99) = 15.67, \text{MSE} = 122.7, p < .01 \), the map-rotation condition, \( F(3, 99) = 7.37, \text{MSE} = 164.9, p < .01 \), and the participant-rotation condition, \( F(3, 99) = 10.84, \text{MSE} = 177.4, p < .01 \). These three simple main effects indicate a lack of equiavailability for any of the orientation conditions. This result suggests that distance estimation is not affected by the orientation of the map but is affected by the different movement types.

Post hoc analysis also revealed a simple main effect of orientation for the RC movement, \( F(2, 66) = 6.11, \text{MSE} = 287.9, p < .01 \). The RC movement was consistently overestimated in both the participant-rotation condition (\( M = 84.71 \)) and the map-rotation...
condition ($M = 85.90$), and was not overestimated in the control condition ($M = 76.80$). Tukey’s HSD test revealed that the RC movement in the control condition was significantly ($p < .01$) different from the RC movement in the other two orientation conditions, and that the other two conditions were not significantly different from each other on the RC movement. There was no simple main effect of orientation for the other three movement types.

**Angle-error analysis.** The angle-error analysis yielded a significant main effect of orientation, $F(2, 66) = 80.12$, $MSE = 981.2$, $p < .01$, indicating a difference in performance between the three orientation conditions. Tukey’s HSD tests indicated the control condition was significantly ($p < .05$) different from the other two conditions on three of the movement types. However, the control condition was not significantly different from the other orientation conditions on the FC movement. This result might be due to the fact that over all three conditions, participants performed best on the FC movement.

There was a significant main effect of movement type, $F(3, 99) = 15.30$, $MSE = 652.3$, $p < .01$. Tukey’s HSD tests indicated the RC movement was significantly ($p < .01$) different from both the SF and FC movements. Also, the SR movement was significantly different from both the FC movement ($p < .01$) and the SF movement ($p < .05$). Over all conditions, then, the two reverse movements were more difficult than the two forward movements.

There was a significant main effect of pre- versus posttest, $F(1, 33) = 6.80$, $MSE = 496.4$, $p < .05$. Improvement in angle accuracy was shown on the posttest, suggesting that participants can improve their performance. There was no main effect for the training conditions.

There was a significant interaction between movement type and orientation, $F(6, 198) = 4.50$, $MSE = 536.8$, $p < .01$. Figure 4 shows the mean angle error scores broken down into each of the four movement types and each of the three orientation conditions. Post hoc analysis revealed a simple main effect of movement type for the map-rotation condition, $F(3, 99) = 14.97$, $MSE = 684.7$, $p < .01$, the participant-rotation condition, $F(3, 99) = 4.55$, $MSE = 906.8$, $p < .01$, and the control condition, $F(3, 99) = 3.02$, $MSE = 132.3$, $p < .05$. These three simple main effects indicate a lack of equiavailability for any of the orientation conditions. Tukey’s HSD tests indicated that in the map-rotation condition both of the reverse-
movement types were significantly \((p < .01)\) different from both of the forward-movement types, and in the participant-rotation condition only the RC movement was significantly \((p < .01)\) different from the FC movement. However, Tukey’s HSD test indicated that the movement types in the control condition were not significantly different from each other.

Figure 4 shows that the greatest mean angle error occurred in the map-rotation condition, and that the two reverse-movement types were more difficult than the two forward-movement types. Figure 4 also shows that the participant-rotation condition was less difficult than the map-rotation condition, and performance was improved on the reverse-movement types, in the participant-rotation condition. Finally, Figure 4 shows that the control condition demonstrated a tendency toward the principle of equiavailability.

A marginally significant interaction occurred between pre- versus posttest and movement type, \(F(3, 99) = 2.69, \text{MSE} = 360.2, p = .0505\). Figure 5 shows the mean angle error scores broken down into the two pre- versus posttest conditions and the four movement types. Post hoc analysis revealed a simple main effect of pre/posttest for the SR movement, \(F(1, 33) = 11.26, \text{MSE} = 384.5, p < .05\), but no simple main effect for the other three movement types. Figure 5 shows that participants’ posttest performance tended to improve on the reverse-movement types.

**General Discussion**

In the map-rotation condition, using angle error as the dependent measure, participants in Experiment 2 had the most difficulty with the reverse-movement types. This result was similar to the findings from Experiment 1. The procedure of the participant-rotation condition was altered in Experiment 2. Participants were allowed to turn the map, instead of moving around it, and to touch the side of the map with their nonpreferred hand, while learning the map and drawing their line. These changes to Experiment 2 prevent a direct comparison with the results from Experiment 1. However, the changes facilitated an improvement in participants’ performance. The improvement in performance brought about by the procedural changes supports the hypothesis that, in the map-rotation condition, when only given two mental orientations, the participant is confused on the direction to the target for the reverse-movement types. This result might occur because the first mental ori-
Orientation is the originally learned map, and the second is the 180˚-rotated orientation described by the experimenter, which contains less information than the participant-move condition. In the participant-move condition, the participants could obtain feedback about the map’s orientation while they moved, continuously updating their mental picture, and thus providing themselves with more information. The fact that angle errors increased when participants were asked to reverse a previously learned movement based on only two mental orientations, suggests that the information which is missing in the map-rotation condition is critical for an accurate choice of direction while using a cognitive map. This lack of information may therefore make the reverse-movement types more confusing than the forward-movement types by not allowing participants to update their cognitive map while they rotate it. This confusion is reduced when participants are allowed to update their cognitive map while turning it 180˚, lending further support to this theory. In Experiment 1 the principle of equiavailability was replicated in the control condition, and the control condition of Experiment 2 showed only marginal differences between movement types, which lends further support to the original study by Levine et al. (1982).

It seems that distance estimation is fairly accurate, regardless of movement type, orientation, or training. Angle error, however, is very sensitive to, and interacts with, both movement type and orientation. This differential suggests that participants accurately estimate distance, but have problems accurately determining direction. The results from the angle-error measure mirror the results from Experiment 1. This result suggests that using a single measurement, which combines both angle and distance error, or measuring angle error only, is sufficient for assessing participants’ directional performance on this type of task.

The implications of this study could be useful in the design of navigation equipment, such as electronic map displays, fire escape maps, and in basic research involving human perception and performance. Although the training used in Experiment 2 did not affect participants’ performance, the fact that practice generally improved their angle accuracy suggests that some type of training could be developed. On the posttest, participants were more accurate in their estimation of angle, but less accurately estimated line length. This anomaly is difficult to explain. Participants might have simply drawn longer lines from fatigue, or the two dependent measures might be inversely related.

The difference in error type between the two dependent measures would be an interesting phenomenon for further research. Another suggestion for future research would be to investigate the cause of the difficulty with the reverse-movement types in the map-rotation condition. Also, in an attempt to improve performance, experimenters could develop different training procedures. This study examined the effects of 180˚ rotations on participants’ performance. Future study into the effects of other than 180˚ rotations would be worthwhile. This area of research has helped to better clarify the processes underlying human acquisition and use of cognitive maps.

References
Induced Aggressive Mood and Explicit Memory

The purpose of these 2 studies is to examine whether an aggressive mood (induced by playing a violent video game) biases a person’s recall of aggressive and nonaggressive words. Study 1 examined the effects that violent video games have on the player and observer. Study 2 examined the effects of an induced aggressive mood on a person’s recall of a list of aggressive and nonaggressive words. In both studies, participants were randomly assigned to play a violent video game, which consisted of fighting a computer opponent using martial arts, or to play a nonviolent video game, which involved racing a high-performance car on a racetrack. Overall, in Study 1, the participants who were exposed to the violent video game had a greater feeling of aggression than the participants who were exposed to the nonviolent video game. Overall, in Study 2, the participants recalled significantly more aggressive words than nonaggressive words, but participants who played the violent video game did not recall significantly more aggressive words than those who played the nonviolent video game.

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Mood congruent memory (MCM) refers to the tendency of a person in a particular mood to recall information that is congruent with that mood (Christianson, 1992; Mayer, McCormick, & Strong, 1995; Watkins, Vache, Verney, Muller, & Mathews, 1996). For example, a person whose mood is depressed is more likely to recall information with an unpleasant meaning than information that has a pleasant meaning.

Although extensive research has examined MCM, the bulk of it has involved depressed participants. For example, studies show that depressed participants are more likely to recall words that are congruent to their mood (Denny & Hunt, 1992; Ruiz-Caballero & Gonzalez, 1994; Watkins, Mathews, Williamson, & Fuller, 1992).

Additional support for MCM has been shown by participants who were induced to be either sad or happy (Gilligan & Bower, 1983). These researchers found that participants whose moods were induced to be happy recalled more happy phrases than participants whose moods were induced to be sad.

Bower (1981) proposed selective attention as an explanation for MCM and suggested that participants actively attend to information or material that is congruent to their moods. For example, when a person with a depressed mood looks at a list of pleasant and unpleasant words, the unpleasant words just pop out at them.

Researchers have reported MCM using explicit memory with depressed participants (Denny & Hunt, 1992; Ruiz-Caballero & Gonzalez, 1994; Watkins et al., 1992) and implicit memory with aggressive par-
victed (Berkowitz, 1973). MCM involving explicit memory with participants in an aggressive mood has not been examined.

Feelings of aggression may be induced by having people play violent video games (Irwin & Gross, 1995; Schutte, Malouff, Post-Gorden, & Rodasta, 1988). Specifically, Irwin and Gross (1995) found that children who played a violent video game displayed significantly more physical aggression toward objects and a confederate than did the children who played the nonviolent video game. Schutte et al. (1988) found that children who played a violent video game were more aggressive afterwards than children who played a nonviolent video game. Despite minimal research on the effects of observing a video game, researchers are interested in the effects of observing television on aggression. Boyatzis, Matillo, and Nesbitt (1995) and Harris (1992) found that observing violent television can increase aggression in the viewer. Because observing video games is similar to observing television, researchers can extrapolate potential hypotheses with regard to observing video games from studies of the effects of watching television. Because most video games are for one player, there is often someone observing the video game being played.

**Experiment 1**

In order to test the hypothesis that an aggressive mood can effect memory, a study was conducted to examine video games’ potential for inducing an aggressive mood in male college students who played them or observed them being played. It was expected that the participants who were exposed to a violent video game would have a greater feeling of aggression than the participants who were exposed to a nonviolent video game. It was further predicted that participants who played the violent video game would have a greater feeling of aggression than participants who observed the violent video game.

**Method**

**Participants.** Forty male students between the ages of 18 and 22 (M = 19.5) from a midwestern university participated. Participants were members of an introductory psychology class and received credit for their participation.

**Apparatus.** A Sony Playstation connected to a 19-inch (48-cm) color television monitor was used to play the video games. Two different high-action video games were used for this experiment. The violent video game was Namco’s Tekken 2 (1996), in which the player fights a computer opponent using martial arts. The nonviolent video game was Electronic Arts’ Need for Speed II (1997), in which the player races a high-performance race car on a racetrack. For this experiment the player only attempted to drive the car at the highest speed possible in order to avoid any violent content of the video game.

**Measures.** Participants completed two questionnaires. The first questionnaire assessed the participant’s age, how long he had been playing video games, and how many hours a week he spent playing video games. The State-Trait Anger Expression Inventory (STAXI; Spielberger, 1988) was used to measure participants’ feeling of aggression. The state anger scale that assesses how a person is feeling at the time they are filling out the questionnaire was used for this study. Coefficient alpha reliability for this sample of 40 men was .76. A comparison sample of 44 college age male participants was used to gather normative data on the STAXI for students at this institution.

**Procedure.** Half of the participants were randomly assigned to play or observe a violent video game, whereas the remainder of the participants were randomly assigned to play or observe a nonviolent video game. Participants were run in pairs, so the order in which they arrived determined which participant played or observed the video game. Upon arrival the participants filled out the first questionnaire. Participants in the player condition then played the video game for 8 min while participants in the observer condition observed the video game being played. If the participant in the player condition was unfamiliar with the video game, he was given a 2 min practice session. During this practice session the observer also watched the video game being played. Prior to playing the video game for 8 min, both the player and the observer were told they could talk freely but that the observer could not touch the control pad. At the end of the 8 min of play the participants completed the STAXI.

**Results**

Three one-way analyses of variance (ANOVAs) were performed to examine differences between the four experimental conditions with respect to age, hours spent each week playing video games, and the number of years playing video games (see Table 1 for means). Age, $F(3, 36) = 1.46, p = .24$, hours spent playing video games, $F(3, 36) = 2.71, p = .06$, or years playing video games, $F(3, 36) = .57, p = .64$, were not significantly different between conditions.

A $2 \times 2$ (Type of Video Game × Involvement) ANOVA was performed to test the hypothesis there would be an effect for type of video game on the feeling of aggression. Table 2 shows the cell means and standard deviations for each condition. There was a main effect for type of video game, $F(1, 36) = 12.80,$
$p = .001$, with the participants exposed to the violent video game having greater feelings of aggression than those participants exposed to the nonviolent video game. The main effect for involvement, $F(1, 36) = .33$, $p = .57$, and the significant interaction, $F(1, 36) = 2.05$, $p = .16$, failed to achieve significance. A planned comparison using a $t$ test on the STAXI scores for the participants who were exposed to the violent video game failed to show a significant difference between the player and the observer on feeling of aggression, $t(18) = 1.05$, $p = .31$.

A one-sample $t$ test was performed to compare each of the player conditions to the standardization sample ($M = 11.57, SD = 2.19$) on the STAXI. The participants who played the violent video game scored significantly higher than the standardization sample, $t(9) = 2.33, p = .027$, and the participants who played the nonviolent video game scored significantly lower, $t(9) = -1.67, p = .001$, on feelings of aggression than the standardization sample.

**Discussion**

The participants who were exposed to the violent video game had a greater feeling of aggression than the participants who were exposed to the nonviolent video game. Furthermore, the participants who played the violent video game rated their feelings of aggression significantly higher than the standardization sample. This finding is consistent with past research (Anderson & Ford, 1986; Irwin & Gross, 1995; Nelson & Carlson, 1985; Schutte et al., 1988). The participants who played the nonviolent video game rated their feeling of aggression significantly lower than the participants in the standardization sample. There was not, however, a significant difference between the players of the violent video game and the observers of the violent video game on their feeling of aggression.

It appears that the nonviolent video game had a calming effect on the player whereas the violent video game induced aggression in the player.

**TABLE 2**

State-Trait Anger Scale Mean Scores: Experiment 2

<table>
<thead>
<tr>
<th></th>
<th>Violent video game</th>
<th>Nonviolent video game</th>
<th>Marginal means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Player of video game</td>
<td>13.90</td>
<td>2.81</td>
<td>10.40</td>
</tr>
<tr>
<td>Observer of video game</td>
<td>12.50</td>
<td>3.14</td>
<td>11.00</td>
</tr>
<tr>
<td>Marginal means</td>
<td>13.20</td>
<td>2.98</td>
<td>10.70</td>
</tr>
</tbody>
</table>

Note. $N = 10$ per condition.

*Mean scores significantly different at the .05 level.*
conducted by Nelson and Carlson (1985), participants overwhelmingly preferred playing nonviolent video games to playing violent video games. The calming effects of nonviolent video games could be one reason why participants would rather play nonviolent video games than violent video games.

**Experiment 2**

The second study examined whether an aggressive mood biases a person’s recall of aggressive and nonaggressive words. Based on past research (Berko-witz 1973; Bower 1981), it was expected that participants whose induced mood was aggressive would recall more aggressive words than nonaggressive words from a list studied after mood manipulation. A second hypothesis was that the participants whose induced mood was aggressive would recall more aggressive words than the participants whose mood was induced to be nonaggressive.

**Method**

**Participants.** Thirty male students between the ages of 18 and 22 ($M = 19.31$) participated in the study. The majority of the participants were members of an introductory psychology class, and they received credit toward a class requirement for their participation.

**Materials.** A pilot study was conducted in order to establish what words undergraduates think are aggressive. A list of 40 words (20 aggressive and 20 nonaggressive) was compiled based on the participants’ judgment of each word’s meaning and the word frequency of each word (see Appendix for word list). Aggressive and nonaggressive words were not significantly different with regard to word frequency, $t(38) = 1.32$, $p = .21$.

**Apparatus.** The same apparatus were used as in Experiment 1. A 13-inch (33-cm) computer monitor was used to display the list of 40 words selected during the pilot study.

**Procedure.** Participants were randomly assigned to play one of the video games. Before the participants played a video game they were asked to fill out a questionnaire that assessed their video game-playing history. If the participants were unfamiliar with the video game, they were give a 2-min practice session to familiarize themselves with the controls. After completion of the 8-min video game-playing session, participants studied a list of 40 words (20 aggressive and 20 nonaggressive) in preparation for a

**TABLE 3**

<table>
<thead>
<tr>
<th></th>
<th>Mean age</th>
<th>Hours spent each week playing video games</th>
<th>Average years playing video games</th>
</tr>
</thead>
<tbody>
<tr>
<td>Played violent Video game</td>
<td>19.41</td>
<td>2.08</td>
<td>10.08</td>
</tr>
<tr>
<td>Played nonviolent Video game</td>
<td>19.20</td>
<td>4.73</td>
<td>9.33</td>
</tr>
</tbody>
</table>

*Note. Standard deviations are in parentheses. $N = 15$ per condition.*

**TABLE 4**

<table>
<thead>
<tr>
<th>Word type</th>
<th>Induced aggressive mood</th>
<th>Induced nonaggressive mood</th>
<th>Marginal means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
</tr>
<tr>
<td>Aggressive</td>
<td>5.00</td>
<td>1.41</td>
<td>6.00</td>
</tr>
<tr>
<td>Neutral</td>
<td>3.40</td>
<td>1.30</td>
<td>4.20</td>
</tr>
<tr>
<td>Marginal means</td>
<td>4.20</td>
<td>1.36</td>
<td>5.10</td>
</tr>
</tbody>
</table>

*Note. $N = 15$ per condition.

*aMean scores significantly different at the .05 level.*
recall test. Each word was presented in random order on a computer screen for 3 s. Each time a new word appeared on the screen, participants were told to say it aloud. After the participants studied the words they counted backwards from 72 by 3. After the distractor task, participants were given 2 min to write down as many words as they could from the words presented on the computer screen.

Results

Three t tests were performed to examine differences between the video-game conditions with respect to age, hours spent each week playing video games, and the number of years playing video games (see Table 3 for means). Age was not significantly different between the conditions, \( t(28) = .60, p = .54 \). Hours spent each week playing video games was not significantly different between conditions, \( t(28) = 1.53, p = .11 \). Years playing video games was not significantly different between conditions, \( t(28) = .59, p = .55 \).

A 2 × 2 (Type of Video Game × Type of Word Recalled) ANOVA with word type as a within-subjects variable was performed on the number of aggressive and nonaggressive words recalled. Table 4 shows the mean and the standard deviations for each condition. There was a main effect for type of word recalled, \( F(1, 28) = 17.59, p < .01 \). The main effect for type of video game, \( F(1, 28) = 3.01, p = .094 \), and the interaction between type of mood induction and type of word recalled, \( F(1, 28) < 1 \), were not significant.

Two planned comparisons based on the hypotheses were performed. The participants who played the violent video game recalled significantly more aggressive words than nonaggressive words, \( t(28) = 3.23, p < .05 \); however, the participants who played the nonviolent video game recalled significantly more aggressive words than nonaggressive words, \( t(28) = 1.41, p = .17 \).

General Discussion

Because participants who played the violent video game recalled significantly more aggressive words than nonaggressive words, the results appear to show support for the first hypothesis. However, the difference in recall was due to the fact that, regardless of video game played, participants recalled significantly more aggressive words than nonaggressive words. Also, the results did not support the second hypothesis because participants who played the violent video game did not recall significantly more aggressive words than those who played the nonviolent video game.

A possible explanation for why participants, overall, recalled more aggressive words than nonaggressive words is that the participants naturally attended to the aggressive words due to a history of being exposed to violent and aggressive material via contemporary media. Violence and aggression are recurrent themes in newspapers and in the movies and television programs we watch. Perhaps due to the constant exposure to violence and aggression, the participants’ moods were already induced to be aggressive before the start of the experiment. If the participants had aggressive moods prior to the beginning of the experiment, then it would have biased their recall of information, thus providing one possible explanation as to why, regardless of video game played, they recalled more aggressive words than nonaggressive words.

The word list is a major limitation to this study. Although the aggressive and nonaggressive words were matched on frequency, they were not, however, matched on meaning. Perhaps the reason why participants, regardless of video game played, recalled more aggressive words than nonaggressive words is because the aggressive words were more interesting and thus easier to imagine than the nonaggressive words. Any meaning attributed to the results of this study must be made cautiously due to the limitations presented by the word list.

Berkowitz (1973) found evidence of MCM by testing children’s implicit memory; children finished more incomplete sentences with aggressive words after reading a war comic than children who read a neutral comic. Further research involving participants whose moods are induced to be aggressive might look for evidence of MCM by testing participants’ implicit memory. Mayer et al. (1995) used a category-retrieval task to test implicit memory in depressed patients. This task involved having the participants respond to a certain word (i.e., marriage, divorce, or love) by listing a word that began with a certain letter. Future research in the area of MCM involving participants whose moods are induced to be aggressive could test implicit memory using a category-retrieval task or some other test of implicit memory.

References


INDUCED AGGRESSIVE MOOD □ Lang


APPENDIX

Aggressive and Nonaggressive Word List

<table>
<thead>
<tr>
<th>Aggressive Words</th>
<th>Nonaggressive Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggression</td>
<td>Abstract</td>
</tr>
<tr>
<td>Assault</td>
<td>Colorless</td>
</tr>
<tr>
<td>Annihilate</td>
<td>Indifferent</td>
</tr>
<tr>
<td>Ransacked</td>
<td>Relaxed</td>
</tr>
<tr>
<td>Decapitate</td>
<td>Unexcessive</td>
</tr>
<tr>
<td>Pulverize</td>
<td>Unextreme</td>
</tr>
<tr>
<td>Eradicate</td>
<td>Disinterest</td>
</tr>
<tr>
<td>Exterminate</td>
<td>Customary</td>
</tr>
<tr>
<td>Destruction</td>
<td>Inactive</td>
</tr>
<tr>
<td>Obliterate</td>
<td>Tranquil</td>
</tr>
<tr>
<td>Massacre</td>
<td>Dullness</td>
</tr>
<tr>
<td>Violence</td>
<td>Slumber</td>
</tr>
<tr>
<td>Ferocious</td>
<td>Impartial</td>
</tr>
<tr>
<td>Slaughter</td>
<td>Melancholy</td>
</tr>
<tr>
<td>Decimation</td>
<td>Impersonal</td>
</tr>
<tr>
<td>Torture</td>
<td>Tolerance</td>
</tr>
<tr>
<td>Devastation</td>
<td>Peaceful</td>
</tr>
<tr>
<td>Execute</td>
<td>Unruffled</td>
</tr>
<tr>
<td>Warfare</td>
<td>Pleasant</td>
</tr>
<tr>
<td>Conquer</td>
<td>Sluggish</td>
</tr>
</tbody>
</table>

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Evaluating Parental Stress and Parental Disciplinary Styles as Predictors of Child Maladaptive Behavior

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New York University

This study examined the relation between parental disciplinary styles, parental stress, and child behavior. Seventy-seven mothers and their children, ages 4 through 12, were recruited from Coney Island Hospital’s outpatient pediatric clinic in New York City. Mothers were administered the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1981), the Styles of Parental Discipline Scale (SPDS; Eisman, 1995), and the Parenting Stress Index (PSI; Abidin, 1995). Children were administered selected cards of the Holtzman Inkblot Test (HIT; Holtzman, Thorpe, Swartz, & Heron, 1976) scored for hostility and anxiety and the Springer Child Aggression Inventory (SCAI; Springer, 1996). The author sought to determine whether (a) parental disciplinary styles are related to child behavior, (b) parental disciplinary styles are related to parental stressors, and (c) parental stress levels are related to child behavior. Results indicate that authoritarian and permissive disciplinary styles are related to child maladaptive behaviors; parental stress was associated with permissive disciplinary style and with internal as well as external behavioral problems. Parental stress was not found to be associated with authoritarian disciplinary style.

Researchers have looked for ways to explain differences in child behavior and adjustment. A consistent research finding is that parents have a great deal of influence on their children’s developmental processes and individual outcomes. Many studies have found that parental influences affect socialization more so than any other individual factor (e.g., school, peers; Baumrind, 1978, 1991; Grusec & Goodnow, 1994; Maccoby & Martin, 1983). Although a variety of child behaviors have been of interest, most research in this area has examined overt aggression because this behavior can be seen at an early age and is a relatively stable characteristic over long periods of time (Björkqvist & Österman, 1992; Parke & Slaby, 1983). Only more recently have researchers started to study the relation of other types of childhood behaviors, such as academic achievement (Steinberg, Dornbusch, & Brown, 1992), social competence (Campbell, 1994), and delinquency (Walker, Stieber, Ramsey, & O’Neill, 1991), to parenting.

A rather consistent finding is that children and their parents are highly correlated on measures of aggression (Björkqvist, 1997; Huesmann, 1988; Huesmann, Eron, Lefkowitz, & Walder, 1984). Theorists and researchers have explained these findings as the transmission of traits from parents to children through socialization. Social learning theory is one attempt to explain the process by which this transference occurs. It proposes that through a combination of reinforcement and modeling parents actively and passively teach their...
children the different characteristics they exhibit (Bandura, 1973).

In response to findings indicating that parents have a profound influence on child behavior, several researchers became interested in determining whether there are certain characteristics that groups of parents may have in common (Baumrind & Black, 1967; Becker, 1964). Through factor analysis, Baumrind (1978) discovered three patterns of parenting practices (authoritarian, authoritative, and permissive), that have been largely accepted and employed in many research paradigms (Darling & Steinberg, 1993; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Maccoby & Martin, 1983). Authoritarian parents are extremely demanding and unresponsive. They are very forceful in their punishment, emphasizing their dominant role over the child. In so doing they provide little, if any, compromise or explanation for their actions. Through their harsh techniques, these parents both model and reward aggressive behavior (Baxter, Lerner, & Miller, 1965). In contrast, permissive parents are characterized by lack of involvement in their children’s daily activities. They neither make any demands, nor expect anything. Regardless of what their children happen to do, they are accepting, benevolent, and nonjudgmental. They do not actively take part in shaping their children’s behavior, often forcing their children to raise themselves. Authoritative parents are both involved in their child’s life and have realistic expectations and demands. They are rational in their parenting techniques, restricting their children when necessary, while giving them more responsibility when they are able to handle it. In this way, authoritative parents shape their child’s behavior through reinforcement, often leading toward more favorable objectives.

Each of these parenting styles has been linked to specific behaviors in children. Authoritarian parenting has been found to be associated with child behavioral problems including aggression, delinquency, hostility, and sexual promiscuity (Baumrind, 1978; Baumrind & Black, 1967; Haapasalo & Tremblay, 1994; Shaw & Scott, 1991; Thompson, Authier, & Ruma, 1994). Permissive parenting has been linked to aggression, delinquency, and other externalizing behavioral problems in children (Darling & Steinberg, 1993). Both authoritarian and permissive types of parents are viewed in negative terms and are encouraged to seek help for their poor parenting skills (Buist, 1998; Fischler, 1985; Rosenberg & Reppucci, 1985). Authoritative parenting, in contrast, has been shown to be related to children who possess more social responsibility, friendliness, independence, and higher levels of academic competence (Lamborn et al., 1991; Radziszewska, Richardson, Dent, & Flay, 1996; Steinberg, Elmen, & Mounts, 1989; Wasserman, Miller, Pinner, & Jaramillo, 1996).

When evaluating the relation between authoritarian and permissive parenting styles with children’s maladaptive behavior, it is hard not to question why a parent might choose to use such disciplinary techniques with their children. Determining which factors are involved in the use of one type of discipline over another may be central to understanding the motivations behind the style of parenting that people use. One possibility is that parents actively choose which type of discipline to use based on what they anticipate will be most effective. Another possibility is that the type of discipline used can be the result of factors that are beyond parents’ control (i.e., parental stress).

Parental stressors have been linked to a variety of negative parenting practices (Deater-Deckard & Scarr, 1996). Mothers used physical punishment as a primary disciplinary technique more often when they felt anxious and ineffective as parents, as compared to when they did not experience such feelings (Porter, 1981). Similarly it was found that perceived inadequacies in the care parents provide for their children also contribute to using “severe aversive” punishment (i.e., spanking; Day, Factor, & Szikba-Day, 1994). Moderate degrees of maternal depression were also associated with increases in aggression toward children (Zuravin, 1989). Although the literature in this area has focused on the factors involved in aggressive types of disciplinary behaviors, Mann and MacKenzie (1996) found marital dysfunction to be strongly related to parental withdrawal and inappropriate responses by parents toward their children.

Through evaluating the impact of stress on parental discipline the literature provides evidence that parenting styles may be a mediating factor between the levels of stress that parents confront and child behavior. It is also possible that parental stress levels have a more direct impact on child behavior; studies evaluating the relations between parental stressors and child behavior provide evidence for such a relation. This body of research has found that marital dissatisfaction, overt marital conflict, alcohol abuse, and parents who suffer from poor self-esteem, depression, self-blame, and feelings of social isolation were associated with a greater incidence of externalizing (i.e., delinquency) as well as internalizing (i.e., anxiety) behavioral problems in children (Beck, Young, & Tarnowski, 1990; Jouriles et al., 1991; Mash & Johnston, 1983; Peisner, 1991; Tarter, Blackson, Martin, Loeber, & Moss, 1993). Patterns of overall parental stress also are related to child psychopathology including adjustment prob-

Although the relations between parenting styles and child behavior, and parental stress and child behavior, are well documented (Deater-Deckard, Dodge, Bates, & Pettit, 1996; Fisher & Fagot, 1993; Haapasalo & Tremblay, 1994; McCord, McCord, & Howard, 1963; Weiss, Dodge, Bates, & Pettit, 1992), many of these studies evaluate parents’ perceptions as the only measure of child behavior. This procedure is problematic because it does not account for parental biases that may be related to parenting styles that are used or stresses that parents confront.

The purpose of the present study was threefold: (a) to determine whether the influence of Baumrind’s (1978) classification of parental styles predicts differences in child internal and external maladaptive behaviors as rated by children and their parents, (b) to investigate which parents are likely to use a given parenting style through examination of levels of parental stress, and (c) to assess the impact of parental stress on child internal and external maladaptive behaviors as reported by children and their parents. The present study specifically focused on mothers’ practices in order to avoid confounding variables due to parental sex differences. The following hypotheses were tested:

1. Authoritative, authoritarian, and permissive disciplinary styles will be associated with internal and external child behavioral problems.
2. Authoritarian and permissive discipline will be associated with parental stress.
3. Parental stress will be associated with internal and external child maladaptive behaviors.

**Method**

**Participants**

Seventy-seven mothers and their children, 4 to 12 years old, were recruited from Coney Island Hospital’s pediatric outpatient clinic (approximately 180 families were initially approached, 96 knew enough English to understand the nature of the study; 11 knew English, but refused to participate; and 8 dropped out). Many families had English as a second language. Almost all of the children were fluent in English, yet about half of the families who were initially approached were excluded due to the mothers’ inability to communicate in English. Approximately half of the children were boys (42.7%). Seventeen percent of the participants were Caucasian, 18% were Hispanic (Latin American), 9% were Indian, 22% were African American, 3% were Asian, and 31% were of other racial groups or unreported.

**Measures**

The Styles of Parental Discipline Scale (SPDS; Eisman, 1995) is a 12-item measure that was designed for the purpose of the present and related studies to gather information from parents on child-rearing styles. It is largely based on the three parenting styles proposed by Baumrind (1978). Each question refers to a particular behavior that parents use to discipline their children (i.e., spanking). All questions are rated on a 5-point Likert scale ranging from never to usually. A complete listing of the scale appears in Appendix A. Factor analysis of 40 participants, done in development of this measure, yielded factors that corresponded to Baumrind’s (1978) factors of authoritarian, permissive, and authoritative discipline. Test–retest correlations for 1 week were found, by the author, to be .88 for authoritarian discipline, .93 for permissive discipline, and .93 for authoritative discipline.

The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1981) measures parental perceptions of child behavior. This measure consists of 118 items focusing on behavioral problems and another 20 items that deal with social competence (i.e., school performance, social relations, and participation in activities). For each item, mothers are asked to rate how much a particular behavior resembles their child’s current behavior, on a 3-point Likert scale ranging from not true to very often true. The test measures eight syndromes: aggressive behavior, anxiety/depression, attention problems, delinquent behavior, social problems, somatic complaints, thought problems, and social withdrawal. The syndromes that were analyzed were the clusters of symptoms that define internal (anxiety/depression, somatic complaints, social withdrawal) and external (aggressive behavior and delinquent behavior) behavioral problems. Achenbach and Edelbrock (1981) found test–retest reliability for a 7-day interval to be .87 for all competence scales and .89 for all problem scales in a sample of eighty 4- to 16-year-old children. Significant correlations were found with the Conners Parent Questionnaire and the Quay-Peterson Revised Behavior Problem Checklist. Criterion-related validity was found to be supported by the test’s ability to distinguish clinical from nonclinical populations (as defined by the DSM criteria; Achenbach & Edelbrock, 1981).

The Holtzman Inkblot Test (HIT; Holtzman, Thorpe, Swartz, & Heron, 1976) contains two different subsets, each containing 45 inkblots. This projective and psychometric test requires participants to describe the image they see on each card presented. For the present study, 12 inkblot cards that were likely...
Parental Disciplinary Style and Child Behavior

The hypothesis that parental disciplinary styles are related to child maladaptive behavior was only partially confirmed (See Table 1). Authoritarian disciplinary style (SPDS) was positively correlated with parental ratings of child internal and external maladaptive behavior (CBCL). However, authoritarian disciplinary style (SPDS) was not related to child ratings of aggression, hostility, or anxiety (SCAI, HIT).

Similar results were found with respect to permissive disciplinary style (SPDS). Although permissive disciplinary style (SPDS) was positively correlated...
with parental report of child internal and external behavioral problems (CBCL), permissive discipline was not correlated with children’s ratings of their own aggression, hostility, or delinquency (SCAI, HIT).

Authoritative disciplinary style (SPDS) was not related to child maladaptive behaviors. Authoritative discipline was not correlated with internal or external maladaptive behaviors on parental report measures (CBCL) or with aggression, hostility, or delinquency on child report measures (SCAI, HIT).

Parental Disciplinary Styles and Parental Stress

As shown in Table 2, total parental stress (PSI) significantly correlated with permissive disciplinary style (SPDS). However, total parental stress (PSI) was not related to authoritarian or authoritative disciplinary techniques (SPDS).

Parental Stress and Child Behavior

Parental stress was only related to parental report of child behavioral problems (see Table 3). Parental total stress (PSI) was positively correlated with both internal and external child maladaptive behaviors for parental report measures (CBCL). However, parental total stress (PSI) was not related to any of the child self-reported maladaptive behaviors (SCAI, HIT).

Discussion

The results of the present study suggest that relations exist between parental stress, parental discipline, and child behavior. However, these patterns are only present when evaluating relations between parental stress and parental discipline with parental reports of child behavior and not when evaluating these variables in conjunction with child reports of their own behavior. It is possible that the children underreported their own levels of maladjustment because of a social desirability factor (Dadds, Perrin, & Yule, 1998; Deluty, 1979; Mabe & Treiber, 1989). The chil-
Parental Disciplinary Styles and Child Behavior

Parental disciplinary styles were associated with parental report of child maladaptive behaviors. For example, authoritarian discipline was associated with both internal and external behavioral problems. This pattern of results indicates that parents who use aggressive techniques in their discipline, such as force and dominance, have children who have more behavioral problems. This result is consistent with Bandura (1973) who explained that parents serve as models for their children’s subsequent aggressive behavior.

This result is also consistent with a number of studies summarized by Bell and Chapman (1986) providing evidence that parental disciplinary techniques are used in response to specific child behaviors. For instance, if a child acts out, parents may respond in an authoritarian fashion in order to control and modify this unfavorable behavior toward a more favorable one. This research explains child behavior not as a consequence of parental discipline but as the stimulus that causes a parent to use certain types of disciplinary techniques. Although either of these unidirectional explanations is plausible, it is likely that a bidirectional interaction between parental and child behavior exists. This notion, which Rothbaum and Weisz (1994) referred to as the “reciprocity theory,” explains that parents and children adjust their behavior in response to one another. This model explains how children learn certain behaviors in the first place and why parents may change the disciplinary method they use as a function of severity of child behavioral problems.

Associations between permissive discipline and parental reports of internal and external child maladaptive behaviors were also found. Because permissive parents may not be involved in their children’s lives, the children may look toward nonparental forms of influence and guidance; these children are more susceptible to peer pressure and more likely to take part in deviant behaviors with their peers than children who are raised by nonpermissive parents (Whitbeck, Conger, & Kao, 1993). They have neither a parent to tell them what is right and wrong nor someone to go to if they are confronted with a problem. Acting in opposition to societal norms is one way of denying and avoiding negative life situations. Another way of expressing an unfavorable relationship with their parents is internally through feelings of anxiety, depression, and other internalizing problems. A second plausible explanation for this result is that parental permissiveness may be the result of child maladaptive behavior. In this case, parents may give up on their children when they become defiant. Parents may be responding to the stress that is exerted on them when a child misbehaves. These parental stressors may stem from direct contact with the misbehavior when they are with the child, or they may be the result of the consequences of their child’s actions, such as acting out in school or committing a crime. In both cases the parent is faced with an unfavorable situation which may warrant some response, causing the parent stress.

Inconsistent with the original hypothesis, the results do not indicate any relations between authoritative discipline and child behavioral problems. A possible explanation for this result is that authoritative parenting may not be directly associated with either adaptive or maladaptive behaviors; rather, this disciplinary style may serve as a neutral context allowing other societal forces to promote or inhibit adaptive or maladaptive behaviors.

Parental Disciplinary Styles and Parental Stress

Contrary to the original hypothesis, which was made on the assumption that authoritarian disciplinary style is often associated with parental problems, parental stress was not related to authoritarian discipline. Authoritative parents do not let rules bend and they establish a structured daily routine, allowing for few surprises. Baumrind (1978) described them as uninvolved in their children’s lives. For these reasons it seems that these parents are very sure of themselves, and suffer very little stress as a result. Another possibility is that these parents are in denial of their child’s problem with aggression. They might use this defense mechanism so they do not have to come to terms with being inadequate parents. A third possibility is that these parents may take their frustrations out on their children when the behavioral problems arise, reducing any stress the parent may have experienced.

Parental stress was only associated with the permissive disciplinary style. This finding is consistent with Ethier, Lacharite, and Couture (1995) who found that negligent mothers suffered from extreme levels of stress and depression. It is also consistent with Zuravin (1989) who found that moderately and severely depressed women were more likely than non-depressed or mildly depressed women to elicit higher levels of verbal aggression.

Parental Stress and Child Behavior

As hypothesized, parental stress was found to be related to internal and external child maladaptive
behaviors. This result provides evidence for one of several interpretations. It may be that parents are transmitting their stress to their children who manifest this stress through internal and external behavioral problems. Another possibility is that parents who have children with behavioral problems become stressed as a result. A third possibility is an interaction in which children’s maladaptive behavior may result in parental stress and vice versa. On the other hand, child maladaptive behaviors were measured by parental perceptions, and the relations between parental stress and child maladaptive behavior may merely represent a negative perception of children by parents who are distressed, a bias that often accompanies stress.

Limitations

There are several limitations associated with this study, and the results should be evaluated in this light. First, because a correlational study was conducted, causality involved in the relations cannot be determined. Parental disciplinary style may determine the level of child maladaptive behavior; however, the opposite may hold true as well; it is also possible that there may be a third variable causing both of these behaviors. Perhaps parents adjust their disciplinary style according to the type of behaviors their child exhibits. Future research might use a longitudinal research design to provide additional information about the nature of this relation. Second, although this study is more comprehensive than previous studies, which used only parental self-report data, it still relied on self-report data. A better indication of whether maladaptive behavior is actually present would be to observe children interacting with others in a natural setting. Third, this study used a questionnaire to determine type of parenting style. Because parents may bias their responses to make themselves look better, it is also important to determine disciplinary style in a natural setting. Finally, this study did not evaluate demographic (i.e., ethnicity, sex of child) or family structure (i.e., single-parent) variables as factors that may influence parental discipline or parental stress. Future research might be sensitive to the role these demographic variables have in these relations.

Implications and Conclusions

Uncertainty exists as to whether the findings between parental disciplinary styles, child maladaptive behavior, and parental stress reflect actual differences or are the result of situational biases. Despite this uncertainty, parental education programs should take into account parental disciplinary styles with the aim of preparing parents for potential future difficulties.

References


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APPENDIX A

Styles of Parental Discipline Scale (SPDS)

Instructions: Please select the alternative that best describes the manner in which you discipline or control the behavior of your child.

1. The use of spanking
   Never——1——2——3——4——5——Usually

2. Explaining the reason for punishment
   Never——1——2——3——4——5——Usually

3. “Grounding” the child
   Never——1——2——3——4——5——Usually

4. Witholding allowance or other things (ex., TV, Nintendo)
   Never——1——2——3——4——5——Usually

5. Not talking to the child / “silent treatment”
   Never——1——2——3——4——5——Usually

6. Yelling at child
   Never——1——2——3——4——5——Usually

7. Just letting things be; doing nothing
   Never——1——2——3——4——5——Usually

8. Ordering the child to do or not do something
   Never——1——2——3——4——5——Usually

9. Giving the child a reward for doing the right thing
   Never——1——2——3——4——5——Usually

10. Sending the child to his/her room (or a corner)
    Never——1——2——3——4——5——Usually

11. Describing to the child how you are disappointed with him/her
    Never——1——2——3——4——5——Usually

12. Threatening the child with severe discipline
    Never——1——2——3——4——5——Usually
APPENDIX B

Springer Child Aggression Inventory (SCAI)

Directions: Please answer the following questions as openly and honestly as you can. Please pick the best answer out of the given choices. If for some reason you do not wish to answer any of the questions, please feel free to skip them.

1) If you are waiting in line and someone pushes you, what would you do?
   a) Push them back (3)
   b) Yell, “Stop that!” (2)
   c) Nothing at all (1)

2) If someone takes one of your toys away from you, what would you do?
   a) Yell, “Give it back” (2)
   b) Hit them and grab it back (3)
   c) Politely ask, “Can I please have it back?” (1)

3) If your mother says that you have to turn off the TV and clean up your room, what would you do?
   a) Say “OK,” and do it (1)
   b) Say “Later,” not planning to do it at all (2)
   c) Say “Leave me alone,” and continue watching TV (3)

4) If, by mistake, your best friend breaks your favorite crayon, what would you do?
   a) Tell the teacher to get him/her in trouble (2)
   b) Tell him/her that it is OK (1)
   c) Break his/her favorite crayon to get back at him/her (3)

5) If you were drawing a picture during arts and crafts time at school and someone wrote all over it, what would you do?
   a) Tell the teacher on him/her (2)
   b) Try to erase the markings (1)
   c) Write on his/her picture (3)

6) If you were going shopping with your mom and you wanted something that your mom said you could not have, what would you do?
   a) Start screaming (3)
   b) Tell your mom that it is OK (1)
   c) Get angry but do not tell your mom (2)
Attitudes Concerning Religion: Relationships Among Fundamentalism, Authoritarianism, Racism, and Homosexual Prejudice

The current study investigated the relations among fundamentalism, authoritarianism, homosexual bias, and racist attitudes. Thirty men and 90 women from a small midwestern university participated. Results indicated a positive correlation among the 4 bias variables: fundamentalism, authoritarianism, homosexual discrimination, and racism. Fundamentalism was positively correlated with authoritarianism, which in turn was positively correlated with racism and homosexual prejudice. ANOVAs of sex and religious denomination (conservative and moderate) found sex nonsignificant with regard to the 4 bias variables. Significant differences of denominational category were found for authoritarianism and homosexual prejudice within the conservative denominational category. Religious self-ratings and church attendance were positively correlated with all bias variables except racism. Results support the previous research of the fundamentalism–authoritarianism–racism relationship. Authoritarian tendency and selectivity bias are discussed as possible explanations for these results.

BRIAN R. LAYTHE
Indiana University Southeast

Religion in some form has always been a part of the human condition, from the worship of the ancient gods of Egypt to the calm meditation of the East. However, the effort to understand the influence of religion on the individual is a project that remains incomplete.

One aspect of Christian religious faith, fundamentalism, has become a popular term in religion and politics and as a consequence has come to represent different ideals. Yet this term can be confusing due to several denominations which seem similar, but in fact are distinct from fundamentalism due to additional qualities of fundamentalist belief and interpretation. Kellstedt and Smidt (1991), when exploring methods for studying this phenomenon, defined fundamentalism as “a sub-group within evangelicalism [that accepts] biblical authority, salvation through Christ, and a commitment to spreading the faith. [Fundamentalists] defend these beliefs militantly.” (p. 260). Fundamentalism is known as a way of perceiving conservative religious views and in itself is not a denomination, but rather a subculture occurring within larger denominations. It should not be viewed as an individual denomination or merely as conservativism. Whereas smaller individual churches of conservative outlook will be fundamentalist, larger established denominations can have smaller groups of fundamentalists within their structures (Kellstedt & Smidt, 1991).

As a subgroup of evangelicalism, it is agreed that fundamentalism holds similar beliefs. “There is a general agreement that evangelicals share a commitment to authority of the Bible, adherence to salvation through Jesus Christ, and a passion for evangelism and missions” (Kellstedt & Smidt, 1991, p. 260). The principal difference between these two groups is the fundamentalists’ separatist lifestyle, personal relations, and militant attitude. These factors also seem to be key differences between fundamentalism and what is known as orthodoxy, or strong beliefs that correspond to accepted church teachings. Kirkpatrick (1993), who investigated the role of orthodoxy within a fundamentalism–racism framework, found that whereas fundamentalism was correlated with racism and homosexual prejudice, orthodoxy was not. This result suggests that the religious category known as orthodoxy is a separate belief system from fundamentalism.

An established difference exists between fundamentalism and conservative religious groups like evangelicalism and orthodoxy. What other differ-
ences, besides a militant and separatist attitude, mark this group as separate from its conservative parishioners? A large part of the answer lies within authoritarianism.

**Fundamentalism, Authoritarianism, and Racism**

Conforming to society and authority is an aspect of most individuals. It is the mechanism by which society is regulated and maintained. Yet, this tendency can be intensified and in turn produces what is known as authoritarianism. Altemeyer (1981) defines authoritarianism as a compilation of the following three aspects of behavior: (a) authoritarian submission, a strong tendency to submit to perceived legitimate and established authorities, (b) authoritarian aggression, an aggressiveness that is directed toward any group that is sanctioned by perceived established authorities, and (c) conventionalism, a strong tendency to conform to societal norms that are endorsed by perceived established authority.

Considering Kellstedt and Smidt’s (1991) previous statements about the militant attitude of fundamentalists, McHoskey (1996) found that strong religious idealism was positively correlated with all three of Altemeyer’s (1981) authoritarian aspects. This idealism was defined as a high valuing of others, a belief that strong moral values protect others from harm. Its opposite trait was defined as relativism, a tendency to reject universal moral codes in favor of viewing morality on a situation-to-situation basis. The picture that begins to unfold implies that the universal codes that are maintained by conservative denominations and fostered by an unquestioning acceptance taught by these groups in turn could produce authoritarian behaviors. Yet, this behavior may depend on the type of beliefs fostered. It is not surprising then that Altemeyer and Hunsberger (1992), as well as Wylie and Forest (1992), found that fundamentalism was positively correlated with authoritarianism. In turn, authoritarianism was positively correlated with homosexual prejudice and racism. It is this relation among fundamentalism, authoritarianism, and racism that is the focus of the current investigation.

Conservative religious groups have practices that are viewed as right or wrong. These standards produce a moral system that is twofold, a system to conform to and a system by which these individuals judge themselves. What happens when individuals begin to take an active role in judging others by those same standards? It is possible that these moral codes contain ideas of ethnic supremacy or the obvious inferiority of the sexes. In what way would the conservative religious individual enforce these beliefs?

Previous studies have investigated the relation between fundamentalism and racism through authoritarianism. Hunsberger (1995) found a positive correlation between fundamentalism and prejudice similar to Wylie and Forest’s (1992) findings. Specifically, he found that religious fundamentalism and right-wing authoritarianism seem to augment each other. According to Hunsberger, this result was due to similarities between fundamentalism and authoritarianism. Both of these ideologies are known to promote obedience to authority, conventionalism, self-righteousness, and feelings of superiority. Hunsberger states that it is this authoritarianism that may play a crucial role in racist attitudes, rather than fundamentalism per se.

Other relevant aspects of this relation also included a religious bias as reported in a study by Byrnes and Kiger (1992), who found that nonfundamentalists would speak against a racist act before fundamentalists would. In addition, Lottes and Kuriloff (1992), in a study of college students, found that broad categories of religion (e.g., Jewish, Catholic, and Protestant) were related to prejudicial tendencies toward homosexuality. Both Byrnes and Kiger (1992) and Lottes and Kuriloff (1992) found that sex is significantly related to prejudicial tendencies: men exhibited more racism than women. Whereas Byrnes and Kiger detected a sex influence on general racism, Lottes and Kuriloff found that conservative men exhibited more homosexual prejudice than conservative women.

The current study is an attempt to replicate the findings of Altemeyer and Hunsberger (1992), Hunsberger (1995), and Wylie and Forest (1992) concerning the interactions among fundamentalism, authoritarianism, and racism within a midwestern American sample. It is hypothesized that individuals with a fundamentalist belief system who score high on measures of authoritarianism will exhibit racist and homosexual prejudicial tendencies. Denominations grouped as conservative should exhibit greater levels of racism and homosexual prejudice than groups that have been categorized as moderate. Men should also exhibit more racist tendencies on both racism scales and homosexual prejudice scales than women.

**Method**

**Participants**

Participants were recruited from introductory psychology classes, as well as an on-campus Christian organization at a small midwestern university. Thirty men and 90 woman participated. Ages ranged from 18 to 53 for women ($M = 22.8$) and 18 to 50 for men ($M = 22.0$).
Materials

The participants completed three surveys measuring fundamentalism, authoritarianism, and racist tendencies. Fundamentalism was measured by the Christian Religious Orientation Scale (Bensko, Canetto, Sugar, & Viney, 1995), a 7-point Likert scale. The 19 questions were anchored at 1 (strongly disagree) and 7 (strongly agree). Participants rated such questions as “The Bible in every detail is the literal word of God” and “Humans are a recent product of natural evolution.” A high score on this scale indicates greater degrees of fundamentalism.

Authoritarianism was defined by the Authoritarianism–Rebellion Scale (Kohn, 1972), a balanced 6-point Likert scale. The 30 questions were anchored at 1 (strongly disagree) and 6 (strongly agree). This survey contains questions such as “Obedience is the mother of success” and “No principal is more immoral than that of obedience.” A high score on this measure indicates higher degrees of authoritarianism.

Racism was defined by a 17-item questionnaire specifically composed for this study (see Appendix). The questionnaire follows the format of the previous scales: a 6-point Likert scale anchored at 1 (strongly disagree) and 6 (strongly agree). Questions were oriented toward a high face validity. “Stereotypes about minorities are true” and “Assumptions about a person because of their race is wrong” are examples of questions included in the scale. A high score on this measure indicates higher degrees of racist tendency.

Racism was defined by a 17-item questionnaire specifically composed for this study (see Appendix). The questionnaire follows the format of the previous scales: a 6-point Likert scale anchored at 1 (strongly disagree) and 6 (strongly agree). Questions were oriented toward a high face validity. “Stereotypes about minorities are true” and “Assumptions about a person because of their race is wrong” are examples of questions included in the scale. A high score on this measure indicates higher degrees of racist tendency.

Four questions that composed an independent measure of attitudes towards homosexuals was imbedded within the racism scale and used to produce a separate score concerning homosexual prejudice. Again, a high score on these four balanced items (i.e., two positive, two negative) indicated higher degrees of homosexual prejudice. Internal consistency was calculated for the racism scale (all 17 questions) and the homosexual prejudice scale (4 questions). Cronbach’s alpha was .70 for the racism scale and .87 for the homosexual prejudice scale.

A personal history questionnaire composed specifically for this study was used to determine participant’s age, race, and religious denomination. Views of self-religiosity were assessed with a 7-point scale anchored at 1 (very religious) and 7 (not religious). Church attendance was assessed using a 6-point scale in which 1 indicated twice or more a week and 6 indicated never.

Procedure

All sessions were conducted within campus classrooms. After all scores were collected, data were tabulated to produce a mean score for the four bias variables: fundamentalism, authoritarianism, racism, and homosexual prejudice.

Participants were separated by denomination into two categories, moderate and conservative. Due to a lack of appropriate participants, a liberal category could not be composed. Catholics, those who identified themselves as general Protestants, and Methodists comprised the moderate category. The denomination known as Christian, which is a specific conservative offshoot of the Pentecostal faith, Pentecostal, and Baptist denominations comprised the conservative category. These denominations were grouped in this way by considering the general attitude of conservatism and ideals of biblical literalism within their ranks. Scores on the four bias variables were then compared across denominational category and sex.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Fundamentalism</th>
<th>Authoritarianism</th>
<th>Racism</th>
<th>Homosexual prejudice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fundamentalism</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Authoritarianism</td>
<td>.215* (110)</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Racism</td>
<td>.032 (113)</td>
<td>.265** (109)</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>4. Homosexual prejudice</td>
<td>.271** (114)</td>
<td>.503** (109)</td>
<td>.318** (117)</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Note. Sample sizes are given in parentheses.
*p < .05.
**p < .01.
Results

Relations Among the Four Bias Variables
Pearson correlations ($\alpha = .05$) were examined to determine the relations among authoritarianism, fundamentalism, racism, and homosexual bias. Table 1 shows that fundamentalism was correlated with authoritarianism and homosexual bias, but had a nonsignificant correlation with racism. Authoritarianism was positively correlated with racism and homosexual bias, and homosexual bias and racism were positively correlated. Some participants failed to answer all questions, resulting in missing data, hence, the sample sizes vary for each bias variable.

Relations of Denominational Category and Sex on the Bias Variables
A two-way analysis of variance was used to investigate the relations of religious denominations and sex on the four bias variables. Factors involved in the subsequent analysis included the two denomination categories (conservative and moderate) and sex.

For racism, the main effect of denominational category was not significant, $F(1,96) = .002, p = .97$, indicating that the religious denominational categories did not incur different scores on the racism measure. The main effect of sex, $F(1,96) = 2.10, p = .15$, and interaction, $F(1,96) = 1.68, p = .20$, also failed to attain significance.

For fundamentalism, the main effect of denominational category was marginally significant, $F(1,98) = 3.42, p = .07$. The conservative denominational group tended to report higher levels of fundamentalism than the moderate denominational group. The main effect of sex, $F(1,98) = 0.81, p = .37$, and interaction, $F(1,98) = 1.56, p = .22$, failed to attain significance.

For authoritarianism, the main effect of religious denomination attained significance, $F(1,92) = 5.20, p = .03$. The conservative denominational group scored significantly higher on measures of authoritarianism than the moderate denominational group. The main effect of sex, $F(1,92) = .198, p = .66$, and interaction, $F(1,92) = .353, p = .55$, were not significant.

For homosexual prejudice, the main effect of religious denomination was significant, $F(1,97) = 13.59, p = .001$. The conservative group scored significantly higher than the moderate denominational group. The main effect of sex, $F(1,97) = 1.95, p = .17$, and interaction, $F(1,97) = 1.50, p = .22$, were not significant.

Views of Self-Religiosity and Church Attendance
Finally, correlations were examined to determine if there was any relationship between self-rated religiosity and frequency of church attendance and the four bias variables (fundamentalism, authoritarianism, racism, and homosexual prejudice). Results show that significant positive correlations ($p < .01$) exist between self-rated religiosity, church attendance, and authoritarianism, fundamentalism, and homosexual bias, as shown in Table 2.

Discussion
Because authoritarianism plays an active role within the fundamentalism–racism framework, the present study supports the model presented by previous researchers (Altemeyer & Hunsberger, 1992; Hunsberger, 1995; Wylie & Forest 1992) in two ways. First, although fundamentalism was not directly correlated with general racism, it was correlated with authoritarianism. Authoritarianism, in turn, was posi-
tively correlated with racism, supporting the indirect relationship of the fundamentalism–authoritarianism–racism model. Second, denominational findings as a whole suggest that although fundamentalism attained marginal significance, it is authoritarianism and homosexual prejudice which seem to correlate strongly with conservative denominations. The current study’s finding that the conservative denominational category scored significantly higher on scores of authoritarianism would also seem to support Hunsberger’s (1995) hypothesis that authoritarianism plays a crucial role in fundamental racism. Hunsberger’s statistical analysis of authoritarianism found that authoritarianism remained strongly correlated to racism, whereas fundamentalism did not. The fact that conservative denominations in the present study correlated strongly with authoritarianism, whereas moderate denominations did not, may indicate that the rigid focus on a moral system which is more common among conservative denominations may relate strongly with authoritarianism and therefore racism. Hunsberger supports this opinion by stating that the focus of racism within fundamentalism is created by the method by which beliefs are justified as opposed to the content of the beliefs themselves.

Eisinga, König, and Scheepers’s (1995) study that attributed anti-Semitic views to religious particularism (a bias toward the form and rules of a particular religion) rather than general prejudice also support this view. Their result strengthens the hypothesis that it is the actions and interpretation within an unyielding authoritarian schema that foster racism, as opposed to the fundamentalist beliefs per se. With this in mind, what aspects of authoritarianism and fundamentalism could produce these findings?

One possible implication of these findings suggests that the connection between authoritarianism and racism is more grounded in the authoritarian and fundamentalist similarity of an unwillingness to deal with any views or characteristics that are not personally familiar or desirable among peers. McFarland and Warren (1992) support this view: their research showed a selective bias in what information a fundamentalist will examine. Fundamentalists were given a choice of either profundamentalist or antifundamentalist material that participants believed they would have to read and evaluate. Fundamentalists chose a significant amount of profundamentalist literature while avoiding material that conflicted with their views. This finding would imply that fundamentalists minimize anything unfamiliar to them and, therefore, develop an aversion to unfamiliar people or objects. Also, Richards (1994) established that there is a weak tendency for more religiously devout intrinsic persons to have a stronger need for approval and concern for maintaining socially desirable appearances.

Concerning the relation of sex, recall that Lottes and Kuriloff (1992) suggested that men and certain religions have negative views toward homosexuality, and Byrnes and Kiger (1992) found significant sex differences in racist attitudes. In contrast, the present study, as well as Kirkpatrick (1993) and Wylie and Forest (1992), found no relation between sex and racism when examining fundamentalism within specific denominations. Within larger categories of religion, such as Christianity, Islam, and Judaism, racial prejudice relations are found with sex, whereas within specific Christian denominations no significant sex relations were found. Research within this area is needed to determine what factors remove sex bias with racism when a narrower focus of religion is studied.

In sum, perhaps the roots of authoritarianism do not lie within its connection to fundamentalism but in personality factors that are formed within the environment. As a consequence, authoritarianism appears within conservative denominations, in which a rigid dogmatic belief system supported by fundamentalism supports the authoritarian need for protection against that which is unfamiliar or perceived as socially undesirable. Although a positive correlation exists among fundamentalism, authoritarianism, and racism, and fundamentalism and authoritarianism, in turn, are positively correlated with church attendance, the process that connects these two variables, and the processes which form these attitudes remain unclear.

The positive correlation with these variables and church attendance suggests that further research should be conducted concerning the actual process that occurs with certain individuals who become fundamentalist and authoritarian within specific churches. Whereas this study has established a relation among church attendance and fundamentalism, authoritarianism, and homosexual prejudice, it is uncertain whether conservative churches attract fundamentalist and authoritarian individuals or whether they create them. If particular conservative churches are responsible for creating these tendencies, is it the manner in which these systems are presented that guides individuals toward authoritarianism and therefore racism? On the other hand, if conservative churches attract these individuals, is it an individual’s need to feel self-righteous or secure in an all-answering belief system of right and wrong that leads him or her to a conservative religious environment? The source of these tendencies is a crucial avenue for further research. Another issue concerns the actual cognitive
processes of these groups and a further look into the tendencies of selective bias that a fundamentalist will read (McFarland & Warren, 1992). Although a general selective bias was discovered, a further minimization of these aspects into processes of particular undesirable stimuli among fundamentalists and authoritarians should be considered by future researchers. Particular attention should be paid to what sort of stimuli and situations fundamentalists and authoritarians find positive and reinforcing, as well as offensive and aversive. From this vantage point, as we understand the process of minimization that authoritarians and fundamentalists use to maintain their belief system, we can then begin to understand the similarities and differences between these two groups and in what ways they interact with each other.

References
### APPENDIX

#### Racism Scale

1 = disagree strongly  
2 = disagree somewhat  
3 = disagree slightly  
4 = agree slightly  
5 = agree somewhat  
6 = agree strongly

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I would move from my house if certain minorities began to move into the area.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Stereotypes about minorities are true.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>It is acceptable to be homosexual.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Bad neighborhoods are populated with mostly minorities.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I am not responsible for acts committed by others that are discriminatory.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Any homosexual has a right to be open about his lifestyle with others.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Only the English language should be spoken in America.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Minority organizations do not always represent the actual minorities' real opinions.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Higher crime rates among Black men are due to a genetic factor, not social inopportunity.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Minorities on welfare are lazy.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Homosexuals are wrong in their practices.</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I have no fear of other minorities.</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>People should be judged on an individual basis.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Minority organizations politically fight for dominance rather than equality.</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Assumptions about a person because of their race is wrong.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Although stereotypes are true, people should still be judged on an individual basis.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>It's poor people's fault that they are poor.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Welfare recipients wish to rise above their current situation and better themselves.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Financial benefits or aid given on the basis of race is wrong.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Any person should receive a job on the basis of his/her skills and qualifications, not race.</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Homosexuals should keep their sexual habits and mannerisms private.</td>
<td></td>
</tr>
</tbody>
</table>
Sincere appreciation is expressed for the hard work on the part of the following individuals who served as reviewers for this issue. Without the assistance of such dedicated professionals, the Psi Chi Journal simply would not be able to function!

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In addition, Psi Chi also sponsors programs to fund student and faculty research. Descriptions of the award/grant competitions follow. Further information and submission forms may be obtained from Psi Chi’s national website (www.psichi.org) or from the Psi Chi National Office, 825 Vine Street, P.O. Box 709, Chattanooga, TN 37403-0709; telephone: (423) 756-2044; e-mail: psichi@psichi.org.

**Guilford Awards**

All Psi Chi undergraduate members are eligible to submit their research for the Psi Chi/J. P. Guilford Undergraduate Research Awards. Cash awards are $500 for first place, $300 for second place, $200 for third place, and $100 for honorable mentions (up to five). In addition, all winners and their faculty research advisors receive award certificates. 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*. The deadline for this award is May 1 (postmark).

**Allyn & Bacon Awards**

The Psi Chi/Allyn & Bacon Psychology Awards, sponsored 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 $500 for first place, $300 for second place, and $200 for third place. In addition, all winners and their faculty research advisors receive award certificates. 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*. The deadline for this award is April 1 (postmark).

**Erlbaum Awards**

The new Psi Chi/Erlbaum Awards in Cognitive Science, sponsored by publisher Lawrence Erlbaum Associates, Inc., are open to all Psi Chi undergraduate and graduate Psi Chi members and are awarded to those who submit the best overall empirical studies in the area of cognitive science. The awards are $500 for the first-place graduate student and $500 for the first-place undergraduate student. In addition, the winners and their faculty research advisors receive award certificates. The
abstracts of the winning papers, as well as photographs and brief biographies of the top two winners, are to be published in *Eye on Psi Chi*. The deadline for this award is April 1 (postmark).

**Newman Graduate Award**

All psychology graduate students are eligible to submit their research for the Psi Chi/APA Edwin B. Newman Graduate Research Award. The winner receives: (1) travel expenses to attend the APA/Psi Chi National 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, is published in *Eye on Psi Chi*. This award is the only student research award presented during the prestigious APA/APF Awards ceremony at the APA/Psi Chi National Convention in August. The deadline for this award is February 1 (postmark).

**Regional Research Awards**

All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the Regional Research Awards. Cash awards of $150 each are presented to students submitting the best research papers to Psi Chi sessions at regional conventions. The number of awards in each region vary with the size of the regions; 75 awards of $150 each were given in the 1998–99 year. Award monies are distributed at the conventions following the presentations. The Psi Chi regional vice-presidents each send a Call for Papers and a letter to the Psi Chi chapters in their respective regions during the fall. These letters include information about the Regional Research Awards, the regional conventions, and submission deadlines for Psi Chi programs. Deadlines for submissions vary according to region and sometimes from year to year; check your fall regional mailing or Psi Chi’s national website ([www.psichi.org](http://www.psichi.org)) for details.

**National Convention Research Awards**

All Psi Chi members (undergraduate and graduate) are eligible to submit their research for the National Convention Research Awards. Cash awards of $150 each are presented to students submitting the best research for Psi Chi sessions at the APA and APS national conventions. Eight awards may be given: four for the APA Convention and four for the APS Convention. Award monies are distributed at the conventions following the presentations. A Call for Proposals is mailed to all chapters in the fall and is also available from the Psi Chi National Office or the Psi Chi national website ([www.psichi.org](http://www.psichi.org)). The deadline for submissions to the Psi Chi student sessions at both the APA and APS conventions is December 1 (postmark).

**Hunt Research Awards**

All Psi Chi student and faculty members are eligible to apply for a Thelma Hunt Research Award. Up to three awards of $2,000 each are presented annually to enable members to complete empirical research that addresses a question directly related to Psi Chi, as posed by either (1) the Psi Chi National Council or (2) the researcher submitting a proposal. Unlike other national Psi Chi award/grant programs, the Hunt Awards focus on research directly related to the mission of Psi Chi. The deadline for this award program is October 1 (postmark).

**Undergraduate Research Grants**

All undergraduate Psi Chi members are eligible to apply for these new undergraduate 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 $1,000 for each project. The deadline for this grant program is October 1 (postmark).

**Faculty Advisor Research Grants**

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 new 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). One grant will be awarded annually within each of Psi Chi’s six regions. The maximum amount of each grant will be $1,500. The deadline for this grant program is June 1 (postmark).
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The Psi Chi Journal of Undergraduate Research is a national, fully reviewed, quarterly journal dedicated to the publication of undergraduate student research. All active Psi Chi chapters receive one complimentary subscription to the journal. We encourage each chapter to see that an additional subscription is obtained for the school library and that other organizations and interested individuals are made aware of its availability. Every effort has been made to provide a high-quality publication and yet offer the journal at affordable subscription rates to ensure its availability to all interested students, faculty members, and institutions.

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