43 Informed Consent: A Methodological Confound?
Edward Burkley III, Shawn McFarland, Wendy Walker, and Jennifer Young,
Southern Illinois University Edwardsville

46 Occupational Stress as a Function of Type of Organization and Sex of Employee
Carolyn Ann Licht, Marymount Manhattan College

56 The Relation Between Job Satisfaction and Personality Similarity in Supervisors and Subordinates
Leann D. Rhodes and Elizabeth Yost Hammer, Belmont University

60 The Relation Between Positive and Negative Alcohol Expectancies and Alcohol Use in College Students
Jackie Bruderick and Donald Ernst, Hillsdale College

68 Effects of Recall Requirements on Strategy Selection in a Visual–Spatial Span Task
Paula R. Selvidge, Wichita State University

73 Documenting Passive Cheating in College Students
Lesley M. Condon, Joselyn M. Hummel, Melody A. Cox, Brandi J. Calahan, and Stephen F. Davis, Emporia State University; Carolyn R. Schmidt, Kansas Wesleyan University

76 The Effects of Salary on Willingness to Date
Kim J. Driggers and Tasha Helms, Oklahoma State University

Published quarterly by Psi Chi, The National Honor Society in Psychology
Psi Chi serves two major goals—one immediate and visibly rewarding to the individual member, the other slower and more difficult to accomplish, but offering greater rewards in the long run. The first of these is the Society’s obligation to provide academic recognition to its inductees by the mere fact of membership. The second goal is the obligation of each of the Society’s local chapters to nurture the spark of that accomplishment and set the stage for future growth through programs designed to augment and enhance the regular curriculum and to provide practical experience and fellowship through affiliation with the chapter. In addition, the national organization provides programs to help achieve these goals, including national and regional conventions held annually in conjunction with the psychological associations, research award competitions, certificate recognition programs, national and regional chapter awards, and national service projects.

For more information about Psi Chi, contact the Psi Chi National Office, P.O. Box 709, Chattanooga, TN 37401-0709; telephone (423) 756-2044; www.psichi.org.
Informed Consent: A Methodological Confound?

The current research investigated the statement of the right to leave at any time, expressed in the informed consent form, and its effects on performance. We gave 1 of 2 types of informed consent forms (with or without the specific statement concerning the right to leave at any time) to each research participant. A list of 22 anagrams was used to assess performance. The results indicated that participants who knew they had the right to leave scored significantly higher than participants who were not aware of this right. This finding indicates that informed consent has an effect on performance and can be a possible methodological confound in research.

Edward Burkley III
Shawn McFarland
Wendy Walker
Jennifer Young
Southern Illinois University
Edwardsville

In response to the horrific medical research conducted in the concentration camps of Nazi Germany, the United Nations General Assembly adopted the Nuremberg Code in 1946. The first principle of this code is “the voluntary consent of the human subjects is absolutely essential” (Katz, 1972, as cited in Greenberg & Folger, 1988, p. 21). This principle conveys an emphasis on human rights and personal freedom. The respect for these rights is expressed in today’s psychological research as the principle of informed consent.

Informed consent can be best defined as “the procedure in which individuals choose whether to participate in an investigation after being informed of the facts that would be likely to influence their decision” (Diener & Crandall, 1978, as cited in Greenberg & Folger, 1988, p. 21). The participant must be accurately informed about the research and must be free to decide whether or not to participate in it. The purpose of informed consent is to allow participants the opportunity to protect their own interests and to share the responsibility for their own welfare. It also reduces the legal liability of the investigators and their institutions. For these ethical reasons, informed consent is used in all research involving human participants.

On the other hand, Gardner (1978), Dill, Gilden, Hill, and Hanselka (1982), and Trice (1987) found that informed consent can actually create methodological confounds. Gardner (1978) investigated the effects of informed consent procedures on stress-related research and found that negative aftereffects in performance occurred when informed consent was not used but not when informed consent was used. Gardner proposed that participants given informed consent may perceive greater control over a stressful event.

Dill et al. (1982) also investigated the effects of informed consent procedures in stress research. They found that participants who had the freedom to withdraw from the study performed significantly better on stressful tasks during random bursts of noise than participants who were not free to withdraw.

The purpose of the present study was to further investigate informed consent procedures as a possible methodological confound. We hypothesized that participants who are informed that they have the right to leave will attempt and correctly answer more anagrams in a shorter amount of time than participants who are not informed of this right.
INFORMED CONSENT: A METHODOLOGICAL CONFOUND?

Burkley, McFarland, Walker, and Young

Method

Participants
Twenty-five undergraduate university psychology students (2 men, 23 women) volunteered to participate. Participants were randomly assigned to either the control or experimental group. Participants received class credit for their involvement in the study and were treated in accordance with the “Ethical Principles of Psychologists and Code of Conduct” (American Psychological Association, 1992).

Materials
One of the two informed consent forms was given to each participant; one form was standard and one was modified so that the statement that the participant may leave at any time was omitted. We administered three tasks to the participants. The first task was to count the number of a’s in the “Star Spangled Banner.” Next the participants solved a list of 22 anagrams (Tresselt & Mayzner, 1966) to assess performance level (see Appendix A). Finally, we administered a four-question work sheet (see Appendix B).

Procedure
We gave one of the two informed consent forms to each participant at the beginning of the study. An experimenter read these forms aloud to the participants. The participants then completed three tasks in succession. Because the purpose of the first task was to invoke a frame of mind of completing multiple tasks so the participant would not rush, we did not analyze these data. We gave participants a time limit of 20 min to complete the second task, a work sheet composed of 22 anagrams. The number of attempts (excluding the correct attempt), the number of correct answers, and length of time participants took to complete the anagrams measured performance. The third task, specifically the third question, was a manipulation check to assess if participants felt they had the right to leave at any time during the study. After each task was completed and before receiving subsequent tasks, we instructed the participants to place the task in an envelope which was then placed in a box. We implemented this procedure to make the participants believe their responses were confidential and that they could stop at any time. The experimenter debriefed the participants after all tasks were completed.

Results
We used three independent-groups Bonferroni t tests to analyze the data. The dependent variables were the length of time spent answering the anagram, the number of attempts, and the number of correct anagrams. Means for time, attempts, and correct answers for the standard informed consent group were 13.23 (SD = 4.69), 5.38 (SD = 4.37), and 15.15 (SD = 3.05), respectively. Means for time, attempts, and correct answers for the modified informed consent group were 11.36 (SD = 4.41), 4.00 (SD = 5.14), and 8.45 (SD = 4.32), respectively. Participants who were informed of the right to leave at any time scored significantly higher on correct answers, t(23) = 3.11, p = .005. No significant differences were found on number of attempts, t(23) = 1.12, p = .28, and length of time, t(23) = 1.25, p = .22. The results of the manipulation check were as follows: 9 participants in the experimental group (N = 11) and all participants in the control group (N = 13) answered that they felt they had the right to leave the study at any time.

Discussion
The hypothesis that participants who are informed that they have the right to leave will perform better than participants who are not informed of this right was supported. The perceived ability of the participants to leave at any time appears to have affected their performance, specifically on the measure of correct answers on a task. The other two measures were not significant. We hypothesize that the measure of attempts was not significant because participants may have made attempts in their heads and neglected to put them down on the answer sheet. Next, the measure of time duration was not significant, suggesting that it is not a factor in performance on the tasks used in the study. With regard to the nonsignificance of time duration, one explanation hypothesized is that participants naturally vary in the time taken to complete a task and that this variation is not an indicator of how well they performed on a task. With regard to the manipulation check, all of the participants in the control group and 9 out of 11 participants in the experimental group stated they felt they had the right to leave at any time. The result that the majority of participants in the experimental group stated they felt they had the right to leave may have been partially due to “good subject” role. Further limitations of the study include the small sample size and the exclusive use of introductory psychology students as participants, who may have had prior knowledge of informed consent requirements.

The implications of this study are that informed consent has both ethical and methodological ramifications. These findings suggest that informed consent has an adverse and undesirable effect on research. Given that informed consent is required for use in all research involving human participants, these effects may be detrimental. Therefore, the use
of informed consent poses a serious problem to research. The findings of this study suggest that further research in areas other than performance is needed to fully understand informed consent’s effects on research.

References


APPENDIX A
Anagram Task

<table>
<thead>
<tr>
<th>Anagram</th>
<th>Correct answer</th>
<th>Anagram</th>
<th>Correct answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEWTR</td>
<td>WATER</td>
<td>NTRAI</td>
<td>TRAIN</td>
</tr>
<tr>
<td>UGARS</td>
<td>SUGAR</td>
<td>GAWNO</td>
<td>WAGON</td>
</tr>
<tr>
<td>OBRAC</td>
<td>COBRA</td>
<td>LATUF</td>
<td>FAULT</td>
</tr>
<tr>
<td>RDCEI</td>
<td>CIDER</td>
<td>EOCVI</td>
<td>VOICE</td>
</tr>
<tr>
<td>MILBC</td>
<td>CLIMB</td>
<td>OCBNA</td>
<td>BACON</td>
</tr>
<tr>
<td>EUCNL</td>
<td>UNCLE</td>
<td>NITGA</td>
<td>GIANT</td>
</tr>
<tr>
<td>NRUCU</td>
<td>INCUR</td>
<td>OEWRP</td>
<td>POWER</td>
</tr>
<tr>
<td>LCOHT</td>
<td>CLOTH</td>
<td>RMCAP</td>
<td>CRAMP</td>
</tr>
<tr>
<td>PHMNY</td>
<td>NYMPH</td>
<td>PMUOI</td>
<td>OPIUM</td>
</tr>
<tr>
<td>LTIFR</td>
<td>FLIRT</td>
<td>DPAOT</td>
<td>ADOPT</td>
</tr>
<tr>
<td>ENOPY</td>
<td>PEONY</td>
<td>BEAHC</td>
<td>BEACH</td>
</tr>
</tbody>
</table>

APPENDIX B
Manipulation Check Questionnaire

1. What was the research study about?
2. What was the first task you completed?
3. Did you feel you had the right to leave at any time during the study without penalty?
4. Why did you put the task folder in the box?
Occupational Stress as a Function of Type of Organization and Sex of Employee

Previous studies show inconsistencies in the relation between sex and occupational stress. Most researchers have limited their focus to the intraorganizational structure, whereas this study explored the effect of type of organization and sex of employee on occupational stress. The researcher compared data (15 men, 25 women) from the nonprofit New York City Department of Administrative Services to archival data (12 men, 23 women; Cioffi, 1997) from a for-profit New York City pharmaceutical company. The Job Stress Survey (JSS; Spielberger, 1994), a self-report instrument, was used to measure the severity and frequency of occupational stress. As predicted, results indicated that employees perceive more occupational stress in nonprofit than in for-profit organizations. However, contrary to predictions, results indicated that there are sex differences in perceived occupational stress: Men report more stress than women in most situations.

Stress is one of the most serious occupational health hazards of our time (Cummins, 1990; Northwestern National Life Insurance Company, 1991, 1992; Quick, Murphy, & Hurrell, 1992). Growing concerns over the consequences of job stress for both employees and organizations are reflected in the increasing numbers of studies of occupational stress over the last few decades (e.g., Adler, 1999; Crandall & Perrewe, 1995; Parker & DeCotiis, 1983; Turnage & Spielberger, 1991). These studies emphasize the importance of developing adequate diagnostic tools for assessing the job pressures and organizational factors that contribute to stress in the workplace.

Stress is one of the most serious occupational health hazards of our time (Cummins, 1990; Northwestern National Life Insurance Company, 1991, 1992) and is linked to many job-related injuries and physical ailments, such as back pain, high blood pressure, and heart disease (Adler, 1999; Hendrix, Summers, Leap, & Steel, 1995). According to Ivancevich and Matteson (1980), most medical textbooks attribute from 50% to 70% of illnesses to stress-related sources. Pelletier (1984) found that occupational stress jeopardizes employees’ health, with 50% to 80% of their diseases being psychosomatic or of a stress-related nature. According to Keita and Sauter (1992), each year in the United States nearly 600,000 workers seek disability payments and early retirement benefits for job-stress–related medical and psychological disorders.

Stress has a negative impact not only on the worker’s health and well-being but also on the employing organization, both in financial terms and through the loss of valued employees (Spielberger &
Chronic stress of employees results in high worker turnover, poor organizational climate, low morale, high accident rates, and employee dissatisfaction (Chen & Spector, 1992; Northwestern National Life Insurance Company, 1991; Parker & DeCotiis, 1983). In addition, reduced productivity and diminished customer services are hidden costs that often result from “exhausted or depressed employees who are not energetic, accurate, or innovative at work” (Karasek & Theorell, 1990, p. 167). Based on national samples, the annual cost of job-stress-related symptoms in absenteeism, company medical expenses, and lost productivity is estimated at $50 billion to $100 billion a year, excluding the cost to replace employees who die, who are ill, or who quit (Niehouse, 1987; Wallis, 1983).

The nature and severity of organizational stressors may differ as a function of work performed (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Turnage & Spielberger, 1991). French, Caplan, and Van Harrison (1982) suggested that stress is the result of a discrepancy between characteristics of the work environment and individual characteristics, which they described as a poor match between the abilities of the employee and the demands of the job. According to researchers (e.g., Cummins, 1990; Parker & DeCotiis, 1983; Summers, DeCotiis, & DeNisi, 1995) who have developed several theoretical models of the causes and outcomes of stress, the factors that consistently appear to influence job stress include: (a) personal characteristics including coping skills and past experience, (b) characteristics and conditions associated with the organization’s structure, resources, and information flow, (c) role ambiguity and role conflict associated with job status and responsibilities, (d) relationships at work and distribution of workload, (e) perceived career development and job security, and (f) external commitments and responsibilities.

Given the potentially deleterious consequences of stress and the changing composition of the workforce, with women occupying more than 45% of the paid labor force (U.S. Bureau of the Census, 1991), workplace stress and support are issues for both men and women. Consequently, research on sex differences is a topic of importance for both individuals and organizations (Geller & Hobfoll, 1994; Harris, 1995; Jick & Mitz, 1985; Martocchio & O’Leary, 1989; Nelson & Quick, 1985). Nevertheless, in a literature review of the relation of sex differences and occupational stress, Jick and Mitz (1985) found numerous “gaps, ambiguity, and inconsistencies in the existing research” (p. 408). They suggested that the difficulty in identifying sex-related differences in workplace stress may have been due to sampling problems, noting that men were often overrepresented in managerial positions whereas more women held clerical and service jobs. Despite these inconsistencies, Jick and Mitz concluded that the sex of an employee acts “not only as a direct predictor of the source of stress, but also as a moderator affecting how stress is perceived, what coping skills are called upon, and how stress is manifest” (p. 409). In supporting this conclusion, they emphasized evidence that women report more symptoms of psychological distress (e.g., emotional discomfort and depression), whereas men are more prone to develop severe stress-related physical illnesses, as reflected by a higher incidence of heart disease and cirrhosis of the liver due to alcohol abuse.

Nelson and Quick (1985) also reviewed research on sex-related differences in the workplace, and concluded that women experience greater occupational stress than men because of the unique sources of job stress typically faced by women, such as the interface of marriage and work, social isolation, discrimination, lower salaries, career blocks, and stereotyping. Subsequent studies indicated that women faced more job-related stress because of their multiple roles as employee, wife, and mother (Anderson & Leslie, 1991; Berardo, Shehan, & Leslie, 1987; Coombs & Hovanessian, 1988). According to Beena and Poduval (1992), the sex difference in work stress was not the result of an inherent biological difference between men and women, but rather the consequence of work/family conflicts, societal expectations, and behavioral norms that women faced as they occupied a combination of roles. However, Piotrkowski, Rapoport, and Rapoport (1987) suggested that it was, in fact, men who were more likely to feel conflict between wage, work, and family commitments because of lengthy work hours.

In contrast to these studies, some researchers (Crandall & Perrewé, 1995; Martocchio & O’Leary, 1989; Simpson & Grant, 1991) concluded that the sources, intensity, and frequency of occupational stressors did not vary significantly by sex; women and men were remarkably similar in their assessments of what was most stressful about their current work situations. Similarly, Di Salvo, Lubbers, Rossi, and Lewis (1995), in a study examining the relation between sex and work-related stress, found no overall sex differences in broad clusters of workplace stressors, although their results indicated that men were twice as likely to report stress relating to power and status, whereas women were twice as likely to report stress related to workload factors. However, these differences could be reflective of an overrepresentation of men in managerial positions and women in clerical and ser-
OCCUPATIONAL STRESS □ Licht

The way people evaluate events and cope with respect to their well-being influences whether they experience psychological stress and, if so, the intensity of that stress (Lazarus, 1995). According to Spielberger and Reheiser (1995), the perceived severity of a stressor, how individuals appraise the significance of a given situation to their well-being, greatly influences the intensity of an emotional reaction when that stressor occurs. However, even though a specific stressor may be perceived as highly stressful, if it occurs infrequently it will have limited impact as a source of stress (Spielberger & Reheiser, 1995). Recurrent and intense stress will increase the incidence and severity of symptoms such as emotional distress, disruption of performance, and illness. Consequently, it is important to assess not only the perceived severity of a stressor, but also how often it occurs (Spielberger, 1994; Spielberger & Reheiser, 1995; Turnage & Spielberger, 1991). Spielberger (1994) designed the Job Stress Survey (JSS), the psychometric self-report instrument used in the present study, to assess the perceived severity and frequency of occupational stressors commonly experienced by managerial, professional, and clerical employees.

Lazarus (1995) proposed that occupational stress occurs when employees perceive the environment as either harmful, threatening, or challenging. Stress, according to Lazarus, is based on the integration of the individual’s personal agenda and the subjective realities of the situation. The type of organization may influence what types of stressors employees encounter, how frequently they are encountered, and how employees react to these stressors in the context of their work (Harris, 1995). Despite the possible relation between the structure of an organization and job-related stressors, little research has examined the impact of type of organization on occupational stress. Although some researchers suggested that organizational structure might affect the level and frequency of job stress (McCue, 1982; Stoline & Weiner, 1988), their studies primarily emphasized variables unrelated to the effect of type of organization. In a study assessing job stress among early-career physicians, Simpson and Grant (1991) examined the association between stress and nonprofit versus for-profit status in medical practices. Their data, collected from graduates of a large medical school, indicated that medical practice problems were more stressful in nonprofit than in for-profit practices, due primarily to business and financial issues. Employees of nonprofit institutions may contribute more personal time and energy without adequate financial compensation because it is presumably in the best interest of the organization and for the “good of the cause” (Simpson & Grant, 1991). These authors suggested a need for further evaluation of the effect of type of organization on occupational stress.

As the roles and responsibilities of employees and the structure of organizations change and develop, more current data reflecting the effect of type of organization and sex of employee on the severity and frequency of occupational stress are essential. The discrepancies observed in previous assessments of sex differences in occupational stress may be related to the overrepresentation of one sex over the other in certain job positions in the intraorganizational structure (Jick & Mitz, 1985). Accordingly, the present study examined the relation of occupational stress to sex of employees in comparable job positions in two types of organizations, a nonprofit and a for-profit. The guiding hypotheses were: (a) employees would perceive more occupational stress in nonprofit organizations than in for-profit organizations; (b) there would be no significant sex differences in the perceived severity and frequency of occupational stress. The researcher, utilizing the JSS, also examined the demographic variables of age, level of education, job level, marital status, and number of children to determine if these factors were related to perceived occupational stress.

Method

Participants

Nonprofit organization. Forty employees (15 men, 25 women), working in white-collar jobs at different levels in the New York City Department of Citywide Administrative Services, Bureau of Personnel Development, participated in the study. The organization, funded by the state, represented nonprofit organizations.

For-profit organization. Thirty-five employees (12 men, 23 women), working in white-collar jobs at different levels in a New York City pharmaceutical company, participated in the study. The organization represented for-profit organizations.

Demographic variables. A comparison of demographic characteristics of participants from the nonprofit organization and participants from the for-profit organization can be seen in Table 1. The participants from the two organizations were comparable in all demographic respects except marital status and job level.
OCCUPATIONAL STRESS

Licht

Materials
The Job Stress Survey (JSS; Spielberger, 1994) describes general sources of stress commonly experienced by managerial, professional, and clerical employees (see Appendix). The JSS is a 30-item psychometric self-report Likert instrument. The JSS assesses the perceived severity and frequency of occurrence of working conditions that may adversely affect the psychological well-being of employees who are exposed to them (Spielberger, 1994; Spielberger & Reheiser, 1995; Turnage & Spielberger, 1991). Participants first rate, on a 1- to 9-point scale (1 = least stressful, 5 = average stress, 9 = most stressful), the severity of stress they perceive to be associated with each of the 30 JSS job stressors. The participants then report, on a scale from 0 to 9+ days, the number of days in which each workplace stressor was experienced during the preceding 6 months. The respondents conclude the survey by indicating their sex, age, education, job level, marital status, and number of children. Summing the ratings for each individual JSS item yields overall severity and frequency scores based on all 30 items. Spielberger and Reheiser (1995) found the alpha reliability coefficients for the JSS scales to be very high: severity (men = .90, women = .92), frequency (men = .90, women = .90). In the current study, the Cronbach’s alpha reliability coefficients also indicated high internal consistency on both scales: severity (men = .93, women = .92), frequency (men = .89, women = .92).

Procedure
Nonprofit organization. In the fall of 1997, the researcher wrote the names of 300 employees from the company directory on identical slips of paper, put them into a container, and randomly selected, without replacement, 75 possible participants. At the beginning of the workweek, an office employee, who served as the distributor and collector of the surveys,

<table>
<thead>
<tr>
<th>TABLE 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison of Demographic Characteristics of Participants From the Two Organizations</td>
</tr>
<tr>
<td>Demographic variables</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>N = 75</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Male (1)</td>
</tr>
<tr>
<td>Female (2)</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>40 and under (1)</td>
</tr>
<tr>
<td>41 and over (2)</td>
</tr>
<tr>
<td>Marital status</td>
</tr>
<tr>
<td>Single/divorced/other (1)</td>
</tr>
<tr>
<td>Married (2)</td>
</tr>
<tr>
<td>Number of children</td>
</tr>
<tr>
<td>With children (1)</td>
</tr>
<tr>
<td>Without children (2)</td>
</tr>
<tr>
<td>Level of education</td>
</tr>
<tr>
<td>High school/college (1)</td>
</tr>
<tr>
<td>Degrees (+graduate) (2)</td>
</tr>
<tr>
<td>Job level</td>
</tr>
<tr>
<td>Overtime/nonmanagement (1)</td>
</tr>
<tr>
<td>Management (2)</td>
</tr>
</tbody>
</table>

*p < .05  **p < .01
sent the JSS questionnaire to the selected participants through interoffice mail along with a return interoffice envelope. A cover letter explained that this survey was confidential and anonymous. The letter further explained that participants agreed to participate by returning the survey and that they could withdraw by simply not completing the questionnaire. The letter instructed the participants to complete the survey and return it to the designated employee by interoffice mail by the end of that workweek. Forty-three participants returned surveys. Because three questionnaires were discarded for lack of demographic information, the research sample consisted of 40 participants (15 men, 25 women).

For-profit organization. In the summer of 1997, Cioffi approached 75 participants at the entrance to the corporation’s cafeteria at lunchtime and asked them to take part in an occupational stress survey. The researcher handed a questionnaire to the participant at the beginning of the workweek along with a return interoffice envelope with the researcher’s office address printed on it. The researcher informed the participants that the survey was anonymous and that their identities would be confidential. The researcher asked the participants to complete the questionnaire and return it to the corporation by interoffice mail by the end of that workweek. Forty-three participants returned surveys. Because three questionnaires were discarded for lack of demographic information, the research sample consisted of 40 participants (15 men, 25 women).

Table 2

<table>
<thead>
<tr>
<th>Type of organization</th>
<th>For-profit</th>
<th>Nonprofit</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>138.75</td>
<td>48.79</td>
<td>159.27</td>
</tr>
<tr>
<td>Female</td>
<td>101.65</td>
<td>46.61</td>
<td>150.76</td>
</tr>
<tr>
<td>Total</td>
<td>114.37</td>
<td>49.95</td>
<td>153.95</td>
</tr>
</tbody>
</table>

Note. The higher the mean scores, the greater the perceived severity of stress.
action of type of organization by sex of employee, $F(1, 71) = 5.75, p = .019$. A test of simple main effects indicated that there was a significant sex difference; men reported greater frequency of stress than women in the for-profit organization, $F(1, 71) = 7.71, p < .01$, but not in the nonprofit organization, $F(1, 71) = .088, p > .05$.

Multiple Regression Analyses

It was a matter of some concern that any differences in type of organization may have resulted from the fact that the samples were not comparable, particularly on the demographic variables of marital status (married: 17.5% nonprofit vs. 51.4% for-profit) and job level (management: 40% nonprofit vs. 14.3% for-profit), as evident in Table 1. However, the multiple regression analyses indicated that these variables were not significant predictors of scores on the perceived severity and frequency of stress scales; marital level and job status were not significant factors influencing the employees’ perception of occupational stress.

Demographic variables in relation to the severity scale. The researcher executed the first multiple regression analysis to determine which demographic variables best predicted the perceived severity of occupational stress. When the researcher simultaneously entered the potential predictors of severity of occupational stress into the equation, the model accounted for 23% of the variance and was statistically significant, $F(7, 67) = 2.86, p = .011$. As expected, based on the analysis of variance results, severity of occupational stress was significantly related to type of organization, ($\beta = .315, t(67) = 2.43, p = .018$). Also consistent with predictions, sex of employee was significantly related to severity of occupational stress, ($\beta = -.237, t(67) = -2.09, p = .040$). Variables that did not significantly predict severity of occupational stress included marital status, job level, number of children, and level of education.

Demographic variables in relation to the frequency scale. The researcher executed the second multiple regression analysis to identify the variables that best predicted the perceived frequency of occupational stress. When potential predictors of the perceived frequency of occupational stress were simultaneously entered into the equation, the model accounted for 29.2% of the variance and was statistically significant, $F(7, 67) = 3.95, p = .001$. As expected, based on the analysis of variance results, frequency of occupational stress was significantly influenced by type of organization, ($\beta = .378, t(67) = 3.04, p = .003$). Also consistent with the researcher’s prediction, frequency of occupational stress was only marginally related to sex of employee, ($\beta = -.195, t(67) = -1.79, p = .078$). Variables that did not predict the perceived frequency of occupational stress included marital status, job level, number of children, and level of education.

Discussion

The present study evaluated differences in severity and frequency of occupational stress as a function of type of organization and sex of employee. The hypotheses were that employees would perceive more occupational stress in nonprofit than in for-profit organizations, and there would be no significant sex differences in perceived occupational stress.

The first hypothesis, that employees of nonprofit organizations would perceive more stress than employees of for-profit organizations, was supported by analyses of variance on both the severity and frequency scales. Nonprofit employees reported significantly more total severity and frequency of stress than did for-profit employees. Inspection of means indicated that nonprofit employees, more often than...
Occupational Stress □ Licht

for-profit employees, reported “inadequate salary” and “insufficient personal time” as their most stressful issues on both the severity and frequency scales. These findings support those of Simpson and Grant (1991), who suggested that nonprofit employees may contribute more personal time and energy without adequate compensation because they perceive it as necessary for the “good of the cause.”

Nonprofit employees also appeared more vulnerable to stressors relating to the work environment. They reported items, such as “insufficient personnel to handle assignments,” “performing tasks not in job description,” “inadequate or poor quality equipment,” and “excessive paperwork” as more stressful on both the severity and frequency scales than did for-profit employees; work overload and resource inadequacy are often associated with nonprofit institutions (Simpson & Grant, 1991). The results of the present study are reflective of previous studies (Cummins, 1990; Parker & DeCotiis, 1983; Summers et al., 1995) in which researchers found some of the most common causes of stress to be related to work overload, resource inadequacy, task demands, and characteristics and conditions of the job itself.

In addition to examining the effects of type of organization on occupational stress, the present study also focused on differences relating to the sex of the employee in perceived occupational stress. Results did not support the hypothesis that there would be no sex differences in perceived occupational stress. Contrary to previous research (Anderson & Leslie, 1991; Berardo et al., 1987; Coombs & Hovanessian, 1988; Nelson & Quick, 1985), men, in general, reported more occupational stress than did women. In fact, a noticeable pattern suggested that for-profit women perceived much less severity and frequency of stress overall than did any of the for-profit men or nonprofit men and women. These results could be further investigated by utilizing open-ended interviews to gain a better understanding of the factors intrinsic to the work setting and the characteristics of individuals that predispose them to stress.

In total severity of occupational stress, an analysis of variance demonstrated that men perceived more stress than did women. On the severity scale, inspection of means indicated sex-related differences on five of the JSS items. Men reported considerably more severity of stress due to “insufficient personnel to handle assignment,” “working overtime,” “fellow workers not doing their job,” “frequent interruptions,” and “lack of participation in policy decisions.” These results suggest that men may perceive more severity of stress in areas where they feel that their work effort is not reflected in their job position.

In total frequency of occupational stress, an analysis of variance did not find a significant difference between men and women. However, there was an interaction between type of organization and sex of employee; men reported greater frequency of stress than did women in the for-profit organization, but not in the nonprofit organization. Inspection of means indicated sex differences on several frequency items, suggesting that men may perceive more frequency of stress in areas where they perceive a lack of control in decision making. The results on both the severity and frequency scales are consistent with those of Di Salvo et al. (1995), who found that men were more likely to perceive stress relating to issues of power and status.

The researcher also examined the effect of the demographic variables of age, marital status, level of education, job level, and number of children on perceived occupational stress. The results indicated that demographic variables were not significant predictors of either severity or frequency of occupational stress. However, future research should not rule out these variables as possible factors in how employees perceive and react to stressors. A longitudinal study focusing on the same group of people over an extended period of time might prove useful in determining if these factors influence how individuals react and cope with stressful situations.

There are several alternate explanations for the significant differences between nonprofit and for-profit organizations, as well as the sex differences, in perceived occupational stress. One explanation is related to the sampling method, which may have introduced a number of limitations. First this study utilized data collected by Gioffri in the summer of 1997 and compared it to data collected in the late fall of 1997. Time of year, weather, and activity level may have affected the way in which items were answered; people may be less pressured by time constraints and be more energetic when daylight hours are longer and temperatures are more agreeable. The study also used a small sample, comparing only one nonprofit with one for-profit organization, thus reducing the external validity of the results. Gioffri’s (1997) participant selection for the for-profit organization may not have represented a random sampling of the organization; she approached people in the company’s cafeteria, excluding employees who skip lunch or eat at restaurants. However, this researcher made a special effort to maintain consistency by collecting the data from employees with white-collar jobs at two relatively comparable organizations.

The self-report instrument itself may be another explanation accounting for the results in the current
study. One issue researchers suggest may be problematic is that responses to these measures may center around social desirability (Martocchio & O’Leary, 1989); employees may not want to present themselves as being unable to handle the workload or as not being favorable toward the organization. The collection of anonymous responses in this study should have minimized these effects. Another issue is that the content of the items on the JSS may not sufficiently address the stressors that women experience, such as items related to their multiple roles as employee, wife, and mother (Anderson & Leslie, 1991; Berardo et al., 1987; Coombs & Hovanessian, 1988). Future research should incorporate more items reflecting the diverse roles of both men and women.

Many variables contribute to the way in which workers perceive occupational stress. Whether stress is a function of sex of employee, type of organization, age, educational background, marital status, job level, or family characteristics, occupational stress is detrimental to both the employees and employers of an organization (e.g., Spielberger & Reheiser, 1995; Turnage & Spielberger, 1991). In order to ameliorate stress, researchers should investigate not only the consequences, but the characteristics of a job perceived as stressful by particular groups (Turnage & Spielberger, 1991). Effective stress management programs can only be established when the sources and differences in occupational stress are clearly understood. In an effort to further the study of what organizations can do to help lower stress, future research should not only examine individuals’ perceptions of work-related stressors, but also the way in which they cope with these stressors. According to Summers et al. (1995), self-report measures of stress should allow each participant to indicate his or her own unique reaction to a situation and should allow for potentially unique manifestations of stress. Open-ended interviews, which allow for flexibility missing in self-administered questionnaires, could be combined with organizational surveys to determine not only the severity and frequency of certain stressors, but also what personality traits and coping skills are most beneficial for stress management. Based on these interviews and survey results, the need for organizational change and training courses could be better determined. Effective coping has the potential of improving work satisfaction, lowering turnover and absenteeism, and other positive outcomes, all of which will clearly benefit both individuals and their employers.

References


APPENDIX

Occupational Stress Survey

Thank you for your participation. Your responses are anonymous and will be kept confidential.

Instructions: Please rate the following events according to the amount of job stress you may have experienced in the past six months. Use the scale below to respond where one (1) is described as the least stressful and nine (9) as the most stressful.

<p>| | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

Least Stressful ................................................................. Most Stressful

1. Inadequate salary .........................................................
2. Lack of opportunity for advancement ...................................
3. Fellow workers not doing their job .....................................
4. Inadequate support by supervisor ......................................
5. Insufficient personnel to handle assignment .......................
6. Lack of recognition for good work ......................................
7. Frequent interruptions .................................................
8. Dealing with crisis situations .........................................
9. Personal insult from customer/colleague ...........................
10. Poorly motivated co-workers ...........................................
11. Lack of participation in policy decisions ...........................
12. Difficulty getting along with supervisor ..........................
13. Assignment of disagreeable duties ...................................
14. Inadequate or poor quality equipment ..............................
15. Competition for advancement .......................................
16. Experience negative attitude toward organization ..............
17. Excessive paperwork ...................................................
18. Meeting deadlines ......................................................
19. Critical on-the-spot decisions ........................................
20. Noisy work area ...........................................................
21. Poor or inadequate supervision .......................................
22. Covering work for another employee ..............................
23. Assignment of increased responsibility ............................
24. Conflict with other departments .....................................
25. Assignment of new or unfamiliar duties .........................
26. Performing tasks not in job description ...........................
27. Frequent changes boring/demanding activities .................
28. Insufficient personal time ............................................
29. Periods of inactivity .....................................................
30. Working overtime .......................................................
APPENDIX

Occupational Stress Survey (continued)

Instructions: Now please report the number of days that the event occurred during the last six months on a scale from 0 to 9+ days.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Inadequate salary</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Lack of opportunity for advancement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Fellow workers not doing their job</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Inadequate support by supervisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Insufficient personnel to handle assignment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Lack of recognition for good work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Frequent interruptions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Dealing with crisis situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Personal insult from customer/colleague</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Poorly motivated co-workers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Lack of participation in policy decisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Difficulty getting along with supervisor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Assignment of disagreeable duties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Inadequate or poor quality equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Competition for advancement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Experience negative attitude toward organization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Excessive paperwork</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Meeting deadlines</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>Critical on-the-spot decisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>Noisy work area</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>Poor or inadequate supervision</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>Covering work for another employee</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Assignment of increased responsibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>Conflict with other departments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>Assignment of new or unfamiliar duties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>Performing tasks not in job description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>Frequent changes boring/demanding activities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>Insufficient personal time</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>Periods of inactivity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.</td>
<td>Working overtime</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please circle the response that best describes you. Thank you for your time!

1. Sex: Male Female
2. Age: 30 and under 31–40 41–50 51 and over
3. Education: H.S. diploma Some college College degree Grad. degree
4. Job level: Overtime eligible Nonmanagement Management
5. Marital status: Single Married Sep./divorced Other
6. Children: 0 1 2 3 or more
The Relation Between Job Satisfaction and Personality Similarity in Supervisors and Subordinates

Organizational behavior has become an extensively researched area of psychology (e.g., Bauer & Green, 1996; Day & Bedeian, 1995; Jain, Lall, McLaughlin, & Johnson, 1996), and research shows that personality plays a large part in the underlying components of behavior in the workplace. The purpose of this study was to determine whether personality similarity also plays a role in organizational behavior. The present study examined the variables of locus of control and agreeableness similarity between supervisors and subordinates and the relation of these variables to job satisfaction. A total of 37 participants from the administrative staff of a southeastern private university completed questionnaires measuring agreeableness, work locus of control, and job satisfaction. Personality similarity scores were obtained from supervisors’ and subordinates’ individual scores. Results support the hypothesis that supervisors and subordinates with a high level of agreeableness similarity have an increased level of job satisfaction. However, we found no relation between similarity of work locus of control and job satisfaction. Implications for the workplace, as well as future research, are discussed.

LEANN D. RHODES
ELIZABETH YOST HAMMER*
Belmont University

Organizational behavior, a concept concerned with affective states and behaviors in work concepts, is a topic of much research (e.g., Bauer & Green, 1996; Day & Bedeian, 1995; Jain, Lall, McLaughlin, & Johnson, 1996). Because personality plays a large role in our behaviors, George (1992) expected that personality also plays a role in the theorizing and research in the area of organizational behavior. However, organizational researchers have held personality factors in low regard until recently. It was not until the 1990s that researchers began to focus on personality as playing an important role in organizational behavior (George, 1992). Researchers have linked personality with many subjects in the field such as management styles (Runyon, 1973), personal control (Greenberger, Strasser, Cummings, & Dunham, 1989), job satisfaction, and job performance (Norris & Niebuhr, 1984).

As personality began to increasingly influence the field of organizational behavior, personality similarity made its debut (e.g., Day & Bedeian, 1995). Personality similarity refers to similarity in the type of personality attribute measured between two persons or groups. Evidence suggests that people with personality similarities have better relationships with one another presumably because they behave in similar ways (Day & Bedeian, 1995). Holland’s (1966, as cited in Day & Bedeian, 1995) theory suggests that individual similarities within an organization become evident through greater job satisfaction.

One of the most common and widely used measures of personality is locus of control (Spector, 1988). Locus of control refers to the tendency to attribute cause or control of events to internal or external factors (Rotter, 1966, as cited in Liebert & Spiegler, 1994). Internal locus of control is the belief that outcomes are the result of one’s own efforts, whereas external locus of control is the belief that outcomes are the result of luck, chance, or powerful others (Liebert & Spiegler, 1994). Andrisani and Nestel (1976) state that locus of control is relevant in an employment experience, because internal–external locus of control can determine aspects of work experience, as well as be a direct result of that experience. Similarity in locus of control consists of two individuals’ having the same state of mind about the source of control (Andrisani & Nestel, 1976). One of the most common and widely used measures of personality is locus of control (Spector, 1988). Locus of control refers to the tendency to attribute cause or control of events to internal or external factors (Rotter, 1966, as cited in Liebert & Spiegler, 1994). Internal locus of control is the belief that outcomes are the result of one’s own efforts, whereas external locus of control is the belief that outcomes are the result of luck, chance, or powerful others (Liebert & Spiegler, 1994).

Copyright 2000 by Psi Chi, The National Honor Society in Psychology (Vol. 5, No. 2, 56–59 / ISSN 1089-4136). *Faculty Supervisor

Author note. We would like to thank Dr. Elliott D. Hammer, Department of Psychology, Tennessee State University, for his assistance and data analysis.

Correspondence concerning this article should be addressed to: Leann Rhodes Phillips, c/o Dr. Elizabeth Hammer, Department of Psychology, Loyola University New Orleans, 6363 St. Charles Ave., New Orleans, LA 70118-6195.
of their outcomes, with both believing in their own efforts (internal) or both believing in luck, chance, or other outside influences (external).

An extension of Rotter’s original locus of control scale was developed by Spector (1988) for use specifically in organizational settings. Spector (1988) found this scale was a better predictor of locus of control in an organizational setting because it correlated with job satisfaction, perceived influence at work, and other aspects of the work field in comparison with the generalized locus of control scale (Spector, 1988). Because work locus of control indicates how cause is attributed, similarity in work locus of control between those persons with whom we work might increase job satisfaction. If two people attribute the cause or control of events to the same source, either internal or external, there would be less reason for conflict, which could in turn lead to greater job satisfaction.

Agreeableness, one of McCrae and Costa’s (1987) five robust factors of personality, also is associated with job satisfaction. Agreeableness is an important attribute when working within an organization (Day & Bedeian, 1995). Compared to the antagonistic person, the agreeable person is sympathetic, cooperative, trusting, and interpersonally supportive (Liebert & Spiegler, 1994). Agreeableness is a reliable predictor of performance and satisfaction in the workplace (Day & Bedeian, 1995). Judge and Ferris (1993) state that being substantially different in terms of agreeableness could lead to disliking or a less than satisfactory relationship with a supervisor or higher authority figure.

The purpose of this study was to examine the relation between work locus of control similarity between supervisor and subordinate, agreeableness similarity between supervisor and subordinate, and job satisfaction. We predicted that as work locus of control and agreeableness similarities increase between supervisor and subordinate, job satisfaction also will increase. Further, as agreeableness similarities between supervisor and subordinate increase, job satisfaction also will increase.

### Method

#### Participants

The participants were volunteers from the administrative staff of a small, private, Baptist-affiliated, 4-year university in the Southeast. Thirty-seven persons (2 male and 4 female supervisors, 11 male and 20 female subordinates) took part in the study.

#### Materials

Spector’s (1988) Work Locus of Control Scale (WLCS) measured locus of control. This instrument consists of 16 items that specifically measure control beliefs in an organizational setting. Participants rate each item on a scale from 1 (disagree very much) to 6 (agree very much). WLCS scores range from 16 to 96, with low scores representing internality and high scores representing externality.

Because the focus of the current study was similarity of personality variables rather than actual raw scores, we derived similarity scores between supervisor and subordinate. We obtained similarity in work locus of control by taking the absolute value of the difference between the supervisor’s work locus of control score and the subordinate’s work locus of control score. Multiple subordinates were often employed in the same department; therefore, it was necessary to use the supervisor’s score multiple times in order to obtain difference scores.

Agreeableness was measured by a portion of the Five Factors of Personality Test (NEO PI-R; McCrae & Costa, 1987). Questions pertaining to the agreeableness component of personality assessed trust, skepticism, cooperativeness, and rudeness (McCrae & Costa, 1987). The agreeableness portion of the test consists of 48 items out of 240 items. The responses are based on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). High scores represent high levels of agreeableness.

Because the focus of the current study was similarity of personality variables rather than actual raw scores, we calculated similarity in agreeableness scores between supervisor and subordinate by taking the absolute value of the difference between the supervisor’s agreeableness score and the subordinate’s agreeableness score. Again, we used supervisor’s scores multiple times to obtain difference scores, due to the fact that multiple subordinates were employed in the same department.

A portion of the Survey of Organizations (SOO; Taylor & Bowers, 1972) measured job satisfaction. The SOO asks participants to rate their satisfaction level for their work group, supervisor, organization, and chance of progress (Day & Bedeian, 1995). The job satisfaction portion of the SOO consists of eight questions. Seven filler questions from other portions of the SOO completed the 15-item questionnaire used in this study. Participants responded to these questions on a 1-to-5 scale; scores ranged from 15 to 75.

#### Procedures

The participants met at times arranged by the experimenter. In order to compare scores between supervisor and subordinates, the experimenter gave each department a code number. This code number was used on the demographics questionnaire when
the participants identified themselves as supervisor or subordinate. Participants completed informed consent forms and then filled out the four questionnaires. Questionnaires were counterbalanced across participants. After completing the questionnaires, all participants were debriefed.

Because of the busy schedules of university employees, it was necessary to have three supervisors fill out the questionnaires by delivering them through campus mail. They were provided with the same set of instructions given to persons attending the meeting. An informed consent form and stapled letter containing debriefing information also was enclosed. After completing the packet of questionnaires, the participants had an opportunity to ask questions about the study or the debriefing procedure over the telephone.

**Results**

The mean and standard deviation characterized the descriptive statistics of job satisfaction, work locus of control similarity, and agreeableness similarity. The mean of job satisfaction was 29.9 ($SD = 5.6$). Work locus of control similarity had a mean of 10.4 ($SD = 8.2$). Agreeableness similarity had a mean of 22.7 ($SD = 13.8$).

A Pearson product–moment correlation coefficient ($r$) determined the correlation between job satisfaction, work locus of control similarity, and agreeableness similarity. Job satisfaction and agreeableness similarity between supervisors and subordinates were significantly related, $r(29) = .35$, $p = .03$; respondents who were high in job satisfaction tended to be more similar in agreeableness. The correlation between work locus of control similarity and job satisfaction approached significance, $r(29) = .28$, $p = .08$. Agreeableness similarity between supervisors and subordinates and work locus of control similarity between supervisors and subordinates also were significantly related, $r(29) = .38$, $p = .02$; respondents who were high in agreeableness similarity had higher work locus of control similarity scores.

**Discussion**

We hypothesized that as work locus of control similarity between supervisor and subordinate increased, job satisfaction would increase, and that as agreeableness similarities between supervisor and subordinate increased, job satisfaction would increase. Results of this study show when agreeableness similarity is greater between supervisor and subordinate, job satisfaction also tends to be greater. Day and Bedeian (1995) report agreeableness is a reliable predictor of job satisfaction, whereas this study shows that agreeableness similarity is a modest predictor of job satisfaction. On the other hand, the predicted relation between work locus of control similarity and job satisfaction achieved limited support. The present results also indicate that when agreeableness similarity is high between supervisor and subordinate, work locus of control similarity is also high. Because work locus of control and agreeableness are highly stressed attributes in all aspects of life, similarities in these attributes support Day and Bedeian’s (1995) finding that persons with personality similarity have better relationships.

A potential limitation in this study was the relatively small sample ($N = 37$), which restricted the power of the statistics. Future studies with larger samples may yield more consistent results. Another limitation is the structure of the departments. Because of this structure, supervisor’s scores were used multiple times for subordinates working in the same department. The structural fact that all supervisors and subordinates did not work closely together also raises questions about the power of the experiment. Despite these limitations, the results of this study have several implications.

One implication is that when persons in the workplace acknowledge and understand personality similarities, specifically similarities in agreeableness, greater job satisfaction may occur. Such information can assist in employee and leadership selection, interdepartmental communication, and problem-solving procedures. Acknowledgment of both the similarities and differences in supervisor and subordinate personalities may create a better understanding of each individual’s strengths and weaknesses in the workplace. Further, when employing an individual, acknowledging certain personality types with whom the employee will work closely may enhance the job description by increasing understanding of what personality strengths are needed for the job. Knowing the strengths and weaknesses of the individuals in the organization could also strengthen interdepartmental communication. For example, if an organization is building a team from different departments, certain personality similarities could play a large part in the success of that team. Because problem-solving procedures usually involve more than one person, extreme personality differences could interrupt the problem-solving process, causing the decision to be less effective.

Future research should explore the possibilities of using other robust factors of personality, such as conscientiousness or extraversion, as variables in a similarly hypothesized study. Day and Bedeian (1995) found that conscientiousness is related to job perfor-
mance; it would be interesting to research its relation to job satisfaction. It would also be interesting to use extraversion as a variable to examine whether comfort in a social setting can account for job satisfaction levels. Research should examine other settings, such as nonacademic settings, in order to vary organizational styles and occupations. Research on personality similarity between coworkers, instead of a sole similarity between the supervisor and the supervisor’s subordinate, is also suggested. Such research could produce helpful results if working in an organization built around teamwork.

References
The Relation Between Positive and Negative Alcohol Expectancies and Alcohol Use in College Students

Jackie Bruderick
DONALD ERNST*
Hillsdale College

Positive and negative alcohol expectancies, as measured by the Comprehensive Effects of Alcohol questionnaire (CEOA; Fromme, Stroot, & Kaplan, 1993), were observed among alcohol drinkers and abstainers in a sample of 47 college students. We divided the sample into 5 levels of drinking: abstainers who had no intention of ever drinking (permanent abstainers), abstainers who presently do not drink but postulate that they will consume alcohol in the future (temporary abstainers), light drinkers, moderate drinkers, and heavy drinkers. As hypothesized, temporary abstainers and light drinkers possessed significantly lower positive expectancies than did heavy drinkers. Temporary and permanent abstainers possessed significantly higher negative expectancies than did moderate and heavy drinkers, which we hypothesized for permanent abstainers but not for temporary abstainers.

Alcohol consumption is an integral part of the collegiate social structure. According to a survey administered to 12,000 university students in 1994, “72% [of college students] consumed alcohol at least once a year and 20.6% were heavy drinkers (consuming five or more drinks per occasion once a week or more)” (Engs, Diebold, & Hanson, 1996, p. 13). The rising incidence of problematic drinking among college students is a strong impetus to conduct research on the correlates and causes of college student drinking. An important line of research derives from expectancy research in the form of the alcohol expectancy theory (Goldman, Brown, & Christiansen, 1987). The alcohol expectancy theory proposes that people’s alcohol drinking behavior (hereafter, simply “drinking”) is contingent on the reinforcements they expect from drinking (Goldman et al., 1987). Research on alcohol expectancies has consistently demonstrated a relation between drinking and expectancies (e.g., Brown, 1985; Johnson, 1994; Thombs, 1993). The present study sought to replicate and extend previous research about the relation between alcohol expectancies and drinking among college students, with particular attention to some deficiencies prevalent in previous studies.

Alcohol expectancies are defined as “. . . beliefs people have about the behavioral, cognitive, and emotional effects of drinking alcohol” (Sher, Wood, Wood, & Raskin, 1996, p. 561). Fromme, Stroot, and Kaplan (1993) identified seven expected drinking outcomes. Four outcomes are positive expectations: (a) sociability, (b) tension reduction, (c) liquid courage, and (d) sexuality. Three outcomes are negative expectations: (a) cognitive and behavioral impairment, (b) risk and aggression, and (c) self-perception (e.g., how the participant expects to feel, such as moody or guilty).

The majority of alcohol expectancy research has focused on positive expectancies with the exclusion of negative expectancies. A popular view among alcohol expectancy researchers, that the strength of positive expectancies is related to how much and how often the participant drinks, has been supported by a number of studies (e.g., Chen, Grube, & Madden, 1996). Fromme, Stroot, and Kaplan (1993) identified seven expected drinking outcomes. Four outcomes are positive expectations: (a) sociability, (b) tension reduction, (c) liquid courage, and (d) sexuality. Three outcomes are negative expectations: (a) cognitive and behavioral impairment, (b) risk and aggression, and (c) self-perception (e.g., how the participant expects to feel, such as moody or guilty).

The authors would like to extend their gratitude and appreciation for the input and suggestions offered by the Psi Chi reviewers and the managing editor, Dr. Stephen F. Davis. Their counsel was valuable and deserves recognition for its part in the refining of the current work. They would also like to express their appreciation to Dr. Donald Heckenlively, biology professor at Hillsdale College, who was an important part of the development of the current work’s graphs.

Correspondence concerning this article should be addressed to Jackie Bruderick, 644 West Surf Street, Apartment 107, Chicago, Illinois 60657. Electronic mail may be sent to jbruderick@hotmail.com.
major advantages over the AEQ. First, it measures alcohol questionnaire (CEOA). The CEOA has two scales of the AEQ were found to correlate positively with increased drinking for male participants (Kidorf, Sherman, Johnson, & Bigelow, 1995).

Positive expectancies are generally considered more closely correlated to drinking than are negative outcomes are reported by participants as occurring sooner after drinking than are negative outcomes (Rohsenow, 1983). That is, the immediate effects of drinking are usually positive (e.g., social facilitation) whereas negative effects are often delayed consequences (e.g., hangover). Rohsenow (1983) found that light drinkers held lower positive expectancies than did moderate and heavy drinkers whereas negative expectancies were not found to vary between light, moderate, and heavy drinkers. From these results, Rohsenow postulated that positive expectancies are more predictive than are negative expectancies of alcohol consumption, which supports the concentration on positive expectancies in alcohol expectancy research.

The AEQ is the most commonly used measure for assessing alcohol expectancies. Nevertheless, despite the extensive utilization of the AEQ, it has received much criticism for two reasons: It excludes negative expectancies (e.g., Fromme et al., 1993; Young & Knight, 1989) and it includes both general and personal beliefs about alcohol (Bauman, 1985–86; Farber, Khavari, & Douglass, 1980; Maisto, Connors, & Sachs, 1981; Southwick, Steele, Marlatt, & Lindell, 1981). The AEQ global positive change subscale assesses the participant’s general beliefs about the effects of alcohol. General beliefs are about how the participant believes alcohol would affect anyone. Personal beliefs, on the other hand, concern how the participant believes alcohol would affect oneself. The AEQ’s incorporation of both general and personal beliefs makes it difficult to determine whether the participant’s expectancy score is a reflection of the participant’s expectation regarding the effects of alcohol on the participant or on others.

In response to criticism of the AEQ, Fromme et al. (1995) developed the Comprehensive Effects of Alcohol questionnaire (CEOA). The CEOA has two major advantages over the AEQ. First, it measures negative as well as positive expectancies. Leigh (1987) found that the evaluation of positive and negative expectancies together was more predictive of the quantity of alcohol consumed than were positive expectancies evaluated alone. Second, the CEOA focuses only on personal beliefs about alcohol by only including items that refer to “self” and eliminating general (global) beliefs (Fromme et al., 1993). The CEOA possesses internal consistency, temporal stability, and construct validity (Fromme et al., 1993).

Because researchers have argued that negative alcohol expectancies are an important object of research (Adams & McNeil, 1991; Hittner, 1997), the CEOA promises to be a valuable assessment instrument. Supporting the CEOA’s inclusion of positive and negative alcohol expectancies, factor analyses by Schafer and Leigh (1996) demonstrated the empirical validity of the distinction between positive and negative alcohol expectancies. Schafer and Leigh found in a study of adolescents and adults that “factor solutions for the two groups corresponded closely in that each solution contained a general positive and general negative alcohol effect expectancy construct” (p. 406).

In support of the empirical difference between positive and negative alcohol expectancies, Johnson (1994) found that negative expectancies correlated negatively with frequency of drinking in a sample of college students. Finally, Buelow and Harbin (1996) found that participants who had experienced blackouts from drinking had higher positive and negative expectancies than did participants who had not experienced blackouts. Blackouts may, of course, be understood to indicate a heavy level of drinking.

Research on the alcohol expectancies of adults has not been limited to participants who drink. In examining abstainers’ expectancies, Leigh (1987) found that they often hold positive and negative alcohol expectancies similar to those of heavy drinkers and that their positive and negative alcohol expectancies differed greatly from those of moderate drinkers. The abstainers and heavy drinkers possessed higher positive expectancies than did low-to-moderate drinkers. In a study of expectancies in Hispanics and non-Hispanic Whites, Marin, Posner, and Kinyon (1993) found that abstainers reported negative expectancies for any situation in which alcohol would be consumed, Jones and McMahon (1996) found in a study of expectancies in abstainers with a past history of alcohol abuse that the higher their negative expectancies were, the longer they remained “on the wagon.”

The present study utilizes the CEOA to measure the positive and negative alcohol expectancies of col-
College students in relation to their drinking habits. The hypothesized ordinal relations are shown graphically in Figures 1 and 2. In an attempt to replicate the findings of Brown et al. (1987), we hypothesized that among the drinkers positive alcohol expectancies will covary positively with the level of drinking of the participant: the higher the level of drinking, the higher the positive alcohol expectancies. The present study diverges from prior research by distinguishing between two types of abstainers: permanent abstainers and temporary abstainers. Temporary abstainers should hold higher positive expectancies than permanent abstainers, but lower positive expectancies than all current drinkers do.

Because temporary abstainers might be considered future drinkers (drinkers who currently have a consumption rate of zero), temporary abstainers might be placed on the drinking continuum at the lowest level of drinking. Therefore negative expectancies are hypothesized to increase from temporary abstainers to light drinkers to moderate drinkers to heavy drinkers. The negative expectancies of permanent abstainers are hypothesized to be comparable to those of heavy drinkers (i.e., greater than those of moderate drinkers, light drinkers, and temporary abstainers).

**Method**

**Participants**

The participants were 47 undergraduate students (30 women, 16 men, 1 did not indicate sex) from a small midwestern college. The mean age was 18.9 years. Participation in the study was one means of fulfilling an introductory psychology research requirement.

**Measures**

Positive and negative alcohol expectancies were measured using the CEOA (Fromme et al., 1993). The CEOA “... measures expectations of physiological, psychological, and behavioral outcomes associated with drinking alcohol” (Fromme et al., 1993, p. 19). The CEOA contains seven factors that are divided into
two groups: positive and negative alcohol expectancies. The positive factors include sociability, tension reduction, liquid courage, and sexuality. The negative factors are described as cognitive and behavioral impairment, risk and aggression, and self-perception. Of the 38 questions, 20 measure positive alcohol expectancies and 18 measure negative alcohol expectancies. Assessment of expectancies begins with “If I were under the influence from drinking alcohol” and ends with a statement such as “I would be friendly.” The responses were checked on a 4-point Likert scale (1 = disagree, 4 = agree). The positive and negative alcohol expectancy scores were calculated separately for each participant from their answers to the 20 positive alcohol expectancy questions and the 18 negative alcohol expectancy questions. The expectancy score was calculated by dividing the sum total of the positive and negative alcohol expectancy answers by 20 and 18 respectively. Therefore, the lowest score was 1 and the highest score was 4 for both positive and negative alcohol expectancies.

We used Cahalan’s Quantity–Frequency Index (CQFI; Cahalan, Cisin, & Crossley, 1969) to determine level of drinking. The CQFI divides respondents into abstainers, light drinkers, moderate drinkers, and heavy drinkers. The CQFI also contains a category termed “infrequent drinkers,” but in the present study “infrequent drinkers” were included with the light drinkers. The CQFI determines a respondents’ drinking level by measuring how often they drink and how many drinks they typically have on one drinking occasion. The CQFI is divided into three sections: wine, beer, and whiskey or liquor. Each section begins with a question about how often the participant drinks alcohol. The answers range from never to three or more times a day. The remaining five questions in each section concern how many drinks the participant consumes on one drinking occasion.

A third measure, completed only by the abstainers, divided the abstainers into two groups: those participants who abstain from drinking with no intention of ever drinking (permanent abstainers) and
those participants who presently do not drink but postulate that they will consume alcohol in the future (temporary abstainers). The permanent abstainers were distinguished from the temporary abstainers by the question “Do you expect ever to drink alcohol?” Reasons for abstaining (religious, moral, or legal) were also assessed. We also recorded sex, age, year in school, grade point average, ethnicity, membership or nonmembership in a fraternity or sorority, political preference, and religion for all participants.

**Procedure**

We tested the participants as a group in a classroom. The questionnaire packets were administered so that half of the participants completed the CEOA first and the CQFI second (Packet A); the remaining participants completed the CQFI first and the CEOA second (Packet B). The abstainer sheet and the demographic sheet followed the CEOA and CQFI in each packet. Before the experimenter instructed the participants to begin, she read the instructions as the participants followed along in their questionnaire packet. The instructions assured the participants of their anonymity.

**Results**

We used CQFI scores to categorize participants according to level of drinking. Nine percent \( (n = 4) \) were permanent abstainers, 11% \( (n = 5) \) were temporary abstainers, 28% \( (n = 13) \) were light drinkers \((1–17 \text{ drinks/month})\), 11% \( (n = 5) \) were moderate drinkers \((18–44 \text{ drinks/month})\), and 43% \( (n = 20) \) were heavy drinkers \((45 \text{ or more drinks/month})\).

Mean positive expectancies by level of drinking are shown in Figure 3. The analysis of variance (ANOVA) main effect of the level of drinking on positive expectancies was significant, \( F(4, 42) = 3.1, p = .03 \). Pairwise comparisons using Fisher’s protected least significant difference (PLSD) method found that temporary abstainers had significantly lower positive expectancies than did heavy drinkers.
Mean negative expectancies by level of drinking are shown in Figure 4. The ANOVA main effect of the level of drinking on negative expectancies was significant, $F(4, 42) = 3.2, p = .02$. Pairwise comparisons using the PLSD method found that temporary abstainers had significantly higher negative expectancies than both moderate drinkers ($p = .01$) and heavy drinkers ($p = .04$). Permanent abstainers also had significantly higher negative expectancies than both moderate drinkers ($p = .01$) and heavy drinkers ($p = .02$).

Three unpaired $t$ tests were used for comparison of order of completion and positive alcohol expectancies, negative alcohol expectancies, and level of drinking. There were no significant order effects between the participants who completed Packet A and participants who completed Packet B, all $t(2, 46) < 0.66$; all $p > .51$.

Discussion

A trend consistent with the hypotheses for positive expectancies was shown in the significant main effect, with the exception that the permanent abstainers’ positive expectancies were not as hypothesized. The hypothesis that heavy drinkers would possess the highest positive expectancies was partly supported in that they possessed significantly higher positive expectancies than did light drinkers and temporary abstainers. The hypothesis that the temporary abstainers would possess lower positive expectancies than all levels of drinkers was not supported, as there was only a trend in the predicted direction. There were no significant relations found for either moderate drinkers or permanent abstainers. We predicted that the permanent abstainers would have the weakest positive expectancies; we rejected this hypothesis because they actually held some of the strongest positive alcohol expectancies, second only to the heavy drinkers. This result may suggest that for permanent abstainers, alcohol has the attraction of a forbidden fruit.
Though negative expectancies significantly varied between groups, the results did not generally support the initial prediction. Both permanent and temporary abstainers held significantly stronger negative expectancies than did moderate and heavy drinkers. We hypothesized strong negative expectancies for permanent abstainers but not temporary abstainers.

Among drinkers, the present study found the same general trend that past researchers have found; that is, the heavier the drinker, the higher the positive expectancies. The present study also found significant differences between the negative expectancies of drinkers and abstainers. The negative expectancy findings suggest an important distinction between the negative expectancies of abstainers and drinkers; the abstainers had higher negative expectancies than moderate and heavy drinkers did. However, there were no significant differences in negative expectancies between light, moderate, and heavy drinkers. Rohsenow (1983) reported similar data.

The present study is distinguished from prior research by its inclusion of a distinction between temporary and permanent abstainers. Because permanent and temporary abstainers differed in terms of positive expectancies, this distinction appears important, and the method we used to operationalize abstention may be valid. However, this suggestion must be taken with caution because the difference is a trend and not a significant difference. Because few abstainers participated in this study, future research on positive and negative expectancies should use larger samples of abstainers.

Finally, future researchers might reconsider the CQFI's method of measuring level of drinking. Although previous researchers have used the CQFI successfully, it suffered from a ceiling effect in the present study. The maximum quantity of alcohol consumption on the CQFI is five to six alcoholic beverages in a sitting. Because a large proportion of our participants indicated they had consumed alcohol at this level, future researchers may want to make additional distinctions between drinkers at the high end of the drinking continuum.

Because the present study found significant differences in both the positive and negative expectancies of drinkers and abstainers, it lends support to the claim that negative expectancies are important to expectancy research (Adams & McNeil, 1991; Hittner, 1997). However, the negative expectancies did not differ between the levels of drinking but did differ between abstainers and drinkers. Overall, the present study found distinctions between both positive and negative expectancies of abstainers and drinkers and offers new categories of abstainers for future research.

References
Schafer, J., & Leigh, B. C. (1996). A comparison of factor struc-
Collegiate Alcohol Use and Alcohol Expectancies □ Bruderick and Ernst

tures of adolescent and adult alcohol effect expectancies. Addictive Behaviors, 21, 403–408.
Effects of Recall Requirements on Strategy Selection in a Visual–Spatial Span Task

The visual–spatial component of working memory proposed by Baddeley and Hitch (1974) was explored in this experiment. The purpose was to investigate the strategies utilized in recalling item locations by varying the type of recall (free/serial/probe) in a visual–spatial span task. Twenty students at a midwestern university participated in the experiment. It was hypothesized that scores would be greater in the free-recall condition than in the serial-recall condition, and the type of recall task would drive strategy selection. Analysis of variance supported the prediction that scores in the spatial location tasks were affected by the type of recall condition. The presence of recency effects and self-reported strategy selection were examined to investigate the types of strategies used in the spatial location tasks.

Numerous researchers have examined the effects of working memory in cognitive processing. Working memory plays a significant role in the performance of tasks, such as reasoning, problem solving, and reading comprehension. Baddeley and Hitch (1974) proposed the concept of a multicomponent working-memory model. The theoretical processing model comprises a central attentional control system, which is responsible for maintaining and manipulating cognitive information and consists of a controlling central executive, and two active subsystems, the phonological loop and the visual–spatial sketchpad. The function of the central executive is to process and integrate information and aid in strategy selection. The two subsystems function as temporary storage for information. The phonological loop is assumed to contain a phonological store and maintain speech-based information through a process of articulatory rehearsal or repetition. The visual–spatial sketchpad stores and maintains visual and spatial information through an imagery process.

A series of experiments performed by Baddeley and Hitch (1974) explored the role of the working memory system in reasoning, comprehension, and free recall by utilizing dual-task interference. Dual-task interference requires that a secondary task be performed simultaneously with a primary task. Techniques such as articulatory interference or repetition of an irrelevant word, delayed recall, and phonemically similar loads disrupted the operation of the short-term memory store through concurrent memory loading. In general, the experiments provided evidence for a phonological loop, due to the disruptive effects of phonological similarity, irrelevant speech, and articulatory interference on performance of reasoning, comprehension, and free-recall tasks. Researchers also have examined the effects of articulatory interference on primary tasks, such as a counting task, or a visual–spatial task. The counting task (Logie & Baddeley, 1987) required participants to count the number of dots presented on a computer monitor under different conditions: straightforward counting, counting plus articulatory interference, counting plus tapping, and estimating. The results showed that articulatory interference or irrelevant word repetition had the most disruptive effects on counting accuracy and articulatory rehearsal on the counting tasks. On the other hand, articulatory interference did not interfere with remembering item locations in a visual–spatial span task (Turner & Gilpin-McMinn, 1994).

Thus, the process of articulatory rehearsal may be responsible for the maintenance of counting in-
formation in the phonological loop. Similarly, imagery may maintain information in the visual–spatial sketchpad. The imagery process for storing visual patterns in visual–spatial working memory has been explored (Broadbent & Broadbent, 1981; Phillips & Christie, 1977a). Phillips and Christie (1977a) presented participants with a sequence of eight 4 × 4 square matrix patterns, with cells of the matrix filled at random. The task required participants to identify whether the pattern presented at the end of the trial had been previously presented in the sequence. The authors reported a visual recency effect, that is, the last matrix presented was recognized more often than those presented earlier in the sequence. Phillips and Christie (1977b) further investigated the effect of secondary tasks inserted between the presentation of the last item in the series and the recognition test. The authors found the one-item visual recency effect was removed by a secondary task of mental arithmetic. Broadbent and Broadbent (1981) argued the recency effect found in the Phillips and Christie (1977a) experiment might reflect the use of a verbal code rather than a visual store on the last item, due to the strategy of naming features of the patterns that were used in their experiment. An example of a verbal code would be if the item presented resembled the letter F, the participant would code it as “it looks like the letter F.”

Broadbent and Broadbent (1981) addressed this possible confound by presenting participants with samples of wallpaper patterns that contained fewer identifiable features that could be coded verbally. The authors presented participants with a series of seven abstract patterns followed by a probe item or item of interest. The task was to recognize if the probe item had appeared in the prior series. A recency effect was reported for the last three items in the series. The authors also introduced a secondary task of visual interference, which included identifying letters of the alphabet presented at the end of the sequence of patterns. Broadbent and Broadbent (1981) found that performance was impaired for all items, not just the recency items, when the secondary task of visual interference was introduced, therefore leaving the recency effect intact.

The present experiment also explored the nature of memory representation in the visual–spatial component of working memory. The purpose was to investigate the strategies used in a spatial location task when varying the type of recall. It was hypothesized that scores measured in the visual–spatial span task would be greater in the free-recall condition than in the serial-recall condition. When investigating strategy selection, primacy and recency were examined, as well as self-reported strategies. Primacy and recency effects are typical of verbal short-term memory tasks (Glanzer & Cunitz, 1966). A recency effect occurs when the last items or stimuli presented are also remembered well, presumably because these items are still in short-term memory at the time of recall. A primacy effect occurs when stimuli presented first are better recalled because they are the first to enter short-term memory and allow greater opportunity for rehearsal and transfer to long-term memory. If a verbal strategy is used, recency effects may be evident in the scores in the spatial location tasks; therefore, it was expected that the existence of primacy and recency would demonstrate the type of strategy utilized.

Method

Participants

Participants were 11 undergraduate and 9 graduate students enrolled in psychology courses at a large midwestern university. The sample consisted of 7 men and 13 women, with ages ranging from 19 to 62, (M = 28.8 years, SD = 11.07). The effects of age on performance were not addressed in this experiment, but previous research with this spatial location task has revealed no age effects (Turner & Gilpin-McMinn, 1994).

Procedure

All participants were tested on an individual basis in a 1 1⁄2-hr session in a laboratory setting. At the beginning of the session informed consent and demographic data were obtained. The type of recall required in the spatial location task (free/serial/probe) was varied within subjects. Each participant completed three versions of a spatial location task; one task with free recall, one with serial recall, and one with probe recall. The presentation order of the spatial location tasks was counterbalanced for each participant. After completion of the spatial location tasks, the participants completed a questionnaire, which assessed the type of strategy used in the tasks.

Materials

Spatial location tasks. In all three tasks (free/serial/probe), participants viewed a series of five 5 × 5 matrices measuring 11.25 cm × 9.25 cm on a 386 IBM-compatible computer with a monochromatic display (black background with a white matrix). The viewing distance was 70 cm, and our display subtended 9.32° of the visual angle. Each of the five matrices was displayed for 750 ms with an inter-stimulus interval of 500 ms. One isosceles triangle with an area of 0.6 cm² appeared in the center of one cell
Effects of Recall Requirements  □  Selvidge

(area = 4.2 cm²) in each matrix. The cell locations of the triangles were randomly presented. The word “recall” was presented on the screen following each series of five matrices. The experimenter informed the participants of the type of recall required (free/serial/probe) before beginning each of the tasks. Each spatial location task consisted of 18 trials. The computer recorded the response time and the experimenter scored the spatial location tasks.

Free-recall spatial location task. On each trial, the participants viewed the five matrices presented and recorded the cell locations of the five triangles immediately after the recall cue. In the free-recall task, participants recorded the cell locations without regard to the order of stimulus presentation by marking Xs on an answer sheet, which matched the dimensions of the matrices presented. One matrix was presented on each answer sheet. The three dependent variable measures included: (a) response time or the time to recall the stimulus locations, (b) the total number of correct cells recorded out of the 90 total possible, and (c) the total number of cells correct by location (across Positions 1–5).

Serial-recall spatial location task. After presentation of the five matrices, participants recorded the locations of the five triangles immediately after the recall cue as in the free-recall task. The serial-recall task differed from the free-recall task in that the participants recorded the triangle locations in the same order as presented on the screen by placing numbers 1–5 in the boxes where the triangles had appeared. The dependent variable measures included: (a) response time or the time to recall the locations, (b) the total correct cells out of the 90 total possible, and (c) the correct responses by location (across Encoding Positions 1–5).

Probe-recall spatial location task. On each trial, the participants viewed the five matrices, and the recall cue was presented at the end of the series. Immediately after the recall cue, a matrix was presented on the screen with one triangle appearing in a specific cell location in the matrix. Two questions appeared simultaneously below the last matrix presented. The first question was “Did a triangle appear in this location?” The participant was instructed to press a key to indicate yes or no to answer the first question. The second question was “If yes, in what position did the triangle appear?” The participant pressed a number 1–5 on the keyboard to indicate the position of the triangle. If the triangle had not appeared in the series of matrices, the experimenter instructed the participant to press no two times in response to the first question. After answering the last question, the next trial began immediately. The probe item or triangle appeared at each encoding position (1–5) in the series three times, and three false probes, or those that had not been presented in the series of matrices, were presented. The dependent variable measures included: (a) the correct response to the first question, if the probe had or had not appeared in the series of matrices (yes/no), (b) the correct responses to the second question across Probe Positions 1–5, and (c) response time or the time to answer both of the questions presented by probe location.

Strategy questionnaire. After completing the three spatial location tasks, the participants reported the strategies they used in each task (free/serial/probe). The participant indicated which recall requirement (free/serial/probe) was the most difficult and the easiest to perform. The participant was questioned about strategy after all three spatial location tasks, instead of after each task, to avoid influencing the type of strategies participants selected during subsequent tasks. The responses to the questions were recorded on tape and coded as spatial, articulatory, combination of spatial and articulatory, or haptic. The strategy categories were determined by previous responses to a similar questionnaire assessing strategy use in the same spatial location task (Turner & Gilpin-McMinn, 1994). The participants were also asked if they recorded the item locations in the order presented in the free-recall task.

Results

Accuracy in the free- and serial-recall tasks. Analyses of variance (ANOVA) addressed differences between the free-recall task and serial-recall task. It was hypothesized that the correct number of cells, measured in the spatial location task, would be greater in the free-recall than in the serial-recall conditions. The type of recall required affected scores. Mean span scores were 80.94% in the free-recall task and 66.39% in the serial-recall task, F(1, 39) = 14.55, p = .0005. In addition, a one-way ANOVA with average response time as the dependent variable was performed. Response time differences between free-recall (M = 6.7 s) and serial-recall (M = 7.1 s) tasks were not significant, which suggested results based on span scores were not a function of a speed/accuracy trade-off.

Accuracy in the probe-recall task. Accuracy was based on two dependent variable measures: (a) the correct response (yes/no) if the probe had or had not appeared in the prior series of stimuli, and (b) the identification of the correct position of the probe. Only those participants who answered Questions 1 and 2 were included in subsequent analyses. The false probe was correctly rejected 76.67% of the time, that is, the probe was correctly identified as not being pre-
sented in the series. The true probe was accepted 70.94% of the time, that is, the probe was correctly identified as having appeared in the series of stimuli. No significant difference was found for the responses. The response time across encoding positions (1–5 and false probe) was also analyzed, and achieved borderline significance, $F(1, 5) = 2.31, p = .0631$. One possible reason for this finding may be that the time to identify whether the probe was in the series (Question 1) was not separated from the time to indicate the position of the probe (Question 2).

**Primacy and recency effects.** Analyses were carried out to address primacy and recency effects as a function of task requirements. The data were analyzed using a 3 (type of recall) × 5 (encoding position) repeated measures ANOVA. The analysis showed a main effect of task, $F(1, 2) = 4.73, p = .0126$. Figure 1 shows the mean number of cell locations recalled by position for the spatial location tasks (free/serial/probe) across Encoding Positions 1–5. The mean number of cell locations recalled by position was higher in the earlier positions for the free-recall task and serial-recall tasks, than the probe-recall task. The mean number of cell locations recalled in the probe-recall task was highest in the last position, suggesting recency effects. A significant main effect of encoding position was revealed, $F(1, 4) = 4.28, p = .0031$. Duncan comparison tests were performed at each position (1–5) in the free, serial, and probe tasks. The Duncan tests revealed a significant difference at Positions 2, 3, and 5. At Position 2, the major difference in the position span scores was between the free-recall and the other two recall tasks. At Position 3, the difference was between the free-recall and probe-recall task. At Position 5, the difference was between the serial-recall and the other two tasks.

**Strategy questionnaire.** In the free-recall task, 85% of the participants reported using a spatial strategy, and 15% used an articulatory/spatial combination. In the serial-recall task, 65% reported using a spatial strategy, 30% an articulatory/spatial combination, and 5% a haptic/spatial strategy. In the probe-recall task, 85% reported a spatial strategy, 10% an articulatory/spatial combination, and 5% a haptic/spatial strategy. The serial-recall task (60%) was reported as the most difficult to perform, followed by
EFFECTS OF RECALL REQUIREMENTS □ Selvidge

the free-recall (30%), and the probe-recall (10%). The probe-recall task (55%) was reported as the easiest to perform, followed by the free-recall (35%), and the serial-recall task (10%). When participants were asked if they recorded locations in the order presented in the free-recall task, the responses were 35% yes, 30% no, and 35% sometimes. Accordingly, order effects were investigated with an ANOVA by comparing scores of those who received the serial-recall task first followed by the free-recall task. No significant differences were revealed for the participants who reported using ordered recall all of the time (35%) or sometimes (35%) in the free-recall task.

Discussion

The hypothesis that scores measured in the visual–spatial span task would be greater in the free-recall condition than in the serial-recall condition was supported by the results. As Figure 1 shows, a similar pattern of scores was evident across positions with the free-recall and serial-recall tasks, suggesting that the participants used a similar strategy in the tasks. The pattern of scores also suggested that the serial-recall task may be more complex than the free-recall task. Recency effects were evident in the probe- and free-recall tasks, possibly suggesting that a different strategy was used than in the serial-recall task. The recency effects found in the probe-recall task may reflect the use of the phonological component of working memory, therefore suggesting that a verbal strategy may have been used in this task. Although when examining the participants’ self-reported strategies, I found that 85% reported using an ordered strategy in the probe task and 85% reported using a spatial strategy in the free-recall task, which is inconsistent with the recency findings. The experiments conducted by Phillips and Christie (1977a, 1977b) were similar to the probe-recall task, in that visual patterns were presented in a matrix and participants had to identify if a pattern had been presented. Phillips and Christie also found a recency effect in their experiments, but they concluded that the findings might reflect visual instead of verbal recency. In addition, more participants in this study reported using an articulatory-based strategy in the serial-recall task (30%) than in the free-recall (15%) or probe-recall task (10%).

It should be pointed out that the probe-recall task differed from the free- and serial-recall task in two ways. First, the probe task was more of a recognition task than a recall task. The participants had to identify that a specific item location had appeared rather than recalling all of the item locations, as in the free- and serial-recall tasks. The response mode was also different in the probe-recall task. The participants’ responses were recorded by the computer in the probe task, rather than by paper and pencil as in the other two tasks. These differential factors must be considered when comparing the three spatial location tasks. A possible confound in all three of the spatial location tasks may be the similarity to a certain shape that the five successive triangles could represent in the matrix. It may be easier to remember the locations if the participants were able to relate the resulting image to a familiar shape or object. The possible confound could be addressed by placing constraints on the presentation of the triangle locations. This procedure could be operationalized by dividing the matrix into quadrants and specifying a number of times a triangle could appear in each quadrant, and then checking the locations to make sure that the triangles do not form a familiar shape or object.

The effects of articulatory and spatial interference on performance in a spatial location task with serial recall have been previously explored (Turner & Gilpin-McMinn, 1994). Future research should also investigate the effects of interference on performance in the probe- and free-recall task to further explore the strategies used in the task. Specifically, the effects of spatial and articulatory interference on the probe- and free-recall task need to be investigated to determine if the recency effect evidenced in the tasks is visual or verbal in nature.

References


Documenting Passive Cheating in College Students

This experiment examined passive cheating in male and female college students. Thirty-two student volunteers participated. Before they completed a test of riddles, the experimental group overheard a male and a female confederate discussing the answers to the test. Participants in the control group did not overhear the discussion. Participants in the experimental group had significantly more answers that corresponded to the confederates’ discussion. Passive cheating exists and is equally likely to be engaged in by college men and women.

Lesley M. Condon
Joselyn M. Hummel
Melody A. Cox
Brandi J. Calahan
Stephen F. Davis*
Emporia State University
Carolyn R. Schmidt
Kansas Wesleyan University

According to Brickman (as cited in Barnett & Dalton, 1981), society has recognized cheating as a social problem for most of recorded history. Today, cheating is a major concern for colleges and universities; academic dishonesty seems to plague the university system (Haines, Diekhoff, LaBeff, & Clark, 1986). Studies conducted during the 1990s indicate that between 40% and 60% of the college students surveyed admitted to cheating on at least one examination (Davis, Grover, Becker, & McGregor, 1992; Davis & Ludvigson, 1995). When other forms of academic dishonesty are taken into account, the percentage of cheaters soars even higher. For example, Sims (1995) reported that 91% of the participants admitted to some form of academic dishonesty.

Even though students and faculty tend to agree on what can be defined as cheating, their views on the severity of different cheating methods do not always agree (Livosky & Tauber, 1994). Graham, Monday, O’Brien, and Steffen (1994) found that “faculty rate . . . [cheating] behaviors as significantly more severe than students” (p. 257), and tend to view all cheating behaviors as severe. Students, on the other hand, view cheating behaviors they initiate as worse than someone cheating off their work (Graham et al., 1994).

Students cheat for many reasons. According to Graham et al. (1994) the top three reasons why students cheat are: (a) they need a better grade, (b) they did not have time to study, and (c) they saw an opportunity and just took it. Sex differences also seem to play a part in whether a person will cheat. Male college students tend to report higher instances of cheating than female college students (Barnett & Dalton, 1981; Davis et al., 1992). Men admitted to cheating on more types of tests and to using a greater variety of cheating methods than women (Baird, 1980; Genereux & McLeod, 1993). Women were more likely to feel guilt over their own cheating and do something about an incident when confronted with another’s cheating; men were more likely to do nothing. Men also seem to be greatly influenced by their friends (Genereux & McLeod, 1993). Sex role socialization theory (Hendershott, Drinan, & Cross, 1999), which is based on the belief that women are programmed to not deviate from the rules or to give into temptation, may account for these differences.

Awareness of cheating in colleges has grown over time (Baird, 1980), but so have the pressures involved
in college life (Barnett & Dalton, 1981). Students feel more pressure to get higher grades, and faculty feel the need to be judged more favorably in order to receive tenure or promotion. These situations make it more likely that students will cheat and less likely that teachers will take strong action to combat cheating (Livorsky & Tauber, 1994).

Hetherington and Feldman (1964) examined three different cheating situations and defined four types of cheating behavior: (a) independent–opportunistic cheating which is unplanned and impulsive, (b) independent–planned which involves planning ahead of time to cheat, (c) social (active) cheating which involves two or more people with the cheater initiating the academically dishonest behavior, and (d) social (passive) which involves two or more people with the cheater taking a passive role. This experiment examined passive cheating in male and female college students. Passive cheating, for the purpose of this study, involves situations in which a test taker overhears comments about the test and then uses those comments to respond in the same manner (Schmidt, 1999). For example, if a teacher gave the same test to two different sections of the same class, students in the second class could inadvertently hear students from the first class discussing the answers.

Method

Participants

Sixteen men and 16 women enrolled in Introduction to Psychology courses at Emporia State University volunteered to be participants. The students signed up for assigned testing times in pairs (one woman and one man). We randomly assigned the pairs to the experimental group (8 pairs) or the control group (8 pairs). Each student received credit toward fulfilling a course requirement.

Materials

All participants completed a 20-item multiple-choice test of riddles. Each item had four answers; B was never the correct answer. Participants indicated their academic classification and sex on the riddles test.

Procedure

Participants waited on a bench outside the testing room before entering for their assigned session. While the participants in the experimental group were waiting, an undergraduate male confederate and an undergraduate female confederate left the testing room. As the confederates passed by, the participant pair overheard them apparently discussing the test they had just completed. The dialogue went as follows:

Confederate 1 (woman): “How do you think you did?”
Confederate 2 (man): “I answered B on almost all of the questions.”
Confederate 1 (woman): “Me too!”

After the confederates had passed by, one of the experimenters asked the participant pair to come into the testing room to complete the riddles test.

Participants in the control group received the same treatment except they did not hear the confederates discussing the test. Therefore, participants in the experimental group were sensitized to the possibility of B answers being correct, whereas participants in the control group were not sensitized to this possibility.

Results and Discussion

We recorded the number of B answers for each participant and subjected these data to a 2 (sex) × 2 (group: experimental vs. control) analysis of variance (ANOVA). This analysis yielded significance, $F(1, 36) = 4.84, p = .035$, for the groups factor. Participants in the experimental group ($M = 2.625, SD = 1.495$) answered $B$ more often than participants in the control group ($M = 1.625, SD = .927$). Omega squared indicated that group membership accounted for 10.70% of the variance.

Previous reports (e.g., Davis et al., 1992; Davis & Ludvigson, 1995; Haines et al., 1986; Jendrek, 1989) have established the prevalence and seriousness of academic dishonesty in contemporary American colleges and universities. In addition to the more popular techniques, students have developed and implemented numerous nefarious schemes designed to unacceptably raise their grades. Teachers have reacted to this rising tide of cheating by developing and implementing countermeasures, such as careful monitoring during tests, administering different forms of the test, separating the students by a desk, and giving all-essay tests (Davis et al., 1992). Unfortunately, these countermeasures are not capable of thwarting passive cheating.

The present data indicate that students will take advantage of any opportunity to acquire information about an examination that presents itself. In this experiment the confederates’ passing comment that the test appeared to contain a number of $B$ answers significantly increased the number of times participants selected this alternative (i.e., passive cheating).
These results indicate that instructors who teach multiple sections of the same course also need to be concerned with information that passes inadvertently from one class to another. One technique for combating passive cheating of this nature is to administer a different test to each class and make sure that the students are aware that this practice is in effect.

References


The Effects of Salary on Willingness to Date

The purpose of the present experiment was to test the role of salary in date selection by men and women. Male and female college students ($N = 150$) viewed pictures of the opposite sex and rated the target’s attractiveness and their own willingness to date the target. Varied among 3 conditions was the level of salary (i.e., $20,000, $60,000, and $100,000) listed. Statistical analyses yielded support for the hypothesis that as the target’s salary increased, a participant’s willingness to date the target would also increase. That is, as salary increased, both men’s and women’s willingness to date a target increased. We also found a significant main effect for the sex of participants; as salary increased, women’s willingness to date a person increased significantly more than men’s willingness.

Kim J. Driggers
Tasha Helms
Oklahoma State University

To properly review current research in the area of date selection, it is first necessary to highlight theories that form the foundations upon which this research was built. Scientists have studied human mate selection for over a century. Darwin (1871) proposed that physical attractiveness and survival attributes were the essence of mate selection (a.k.a. natural selection). Many anthropologists and biologists have explained the factors of physical attractiveness and socioeconomic status (SES) on the basis of evolutionary principles. Often when selecting a mate, one’s instinct is a driving factor. Men, according to sociobiologists, search for the most attractive woman to mate with in order to ensure reproductive success (Buss, 1987). Men thus must use physical appearance or related factors (e.g., age and health) to predict the fertility and genes of a woman. To men, mating with a highly attractive woman ensures that their offspring will have a “good” (i.e., viable) genetic makeup. Yet the suggested pattern for women is somewhat different. In terms of evolution, women are more selective than men in their mate selection. Women have more potential risks when choosing a mate (e.g., pregnancy, childbirth, child rearing) and thus concentrate more on a man’s ability to provide for her and her offspring (Townsend & Levy, 1990b); hence, commitment and the man’s ability to offer resources are important factors when it comes to a woman’s selection of a man.

Social psychologists explain these differences in mate selection as a social exchange between the sexes (Rusbult, 1980). Scientists have found the exchange of a man’s security for an attractive woman is the basis of mate selection (Rusbult, 1980). Elder (1969) found that men’s personal prestige ratings increased when they were paired with an attractive woman. However, ratings of women in Elder’s study were based on physical attractiveness only. Therefore, women are exchanging attractiveness for the resources men can provide.

These diverse theories highlight the importance of physical attractiveness and SES. Research (Buss, 1987; Darwin, 1871; Elder, 1969; Rusbult, 1980; Townsend & Levy, 1990b) suggests that physical attractiveness is a better predictor of mate selection in men, and SES is a better predictor of mate selection in women. Current studies have also found that both of these attributes play an integral part in female and male mate selection (e.g., Buss, 1989; Davis, 1985; Goode, 1996; Hill, Nocks, & Gardner, 1987; Hudson & Henze, 1969; Joshi & Rai, 1989; Sprecher, 1989; Townsend & Levy, 1990a, 1990b).
Townsend and Levy (1990a) questioned participants regarding different types of relationships ranging from casual conversation to dating, sex, and other types of serious relationships. Participants rated their willingness to engage in these types of relationships based on a slide photograph of a person (face and torso were depicted in the picture). Results indicated that men and women were more likely to engage in all types of relationships when a person was physically attractive. Sprecher (1989), on the other hand, presented only a description of a person (e.g., occupation, salary, favorite color) as the stimulus. Sprecher also found that physical attractiveness played an important factor, even in the absence of visual stimuli.

Other current studies have noted SES as an important predictor of interpersonal attraction. SES includes factors such as career, salary, and the attitudes and behaviors attributed to the concerned person (Joshi & Rai, 1989). Research indicates SES is an important element among both sexes in terms of date selection (Bell, 1976; Goode, 1996; Hill et al., 1987; Townsend & Levy, 1990b). For example, Hill et al. (1987) found that attractiveness ratings by both men and women of an unattractive target of the opposite sex increased as their SES increased. Although important to both sexes, SES is even more important to women than to men in terms of date selection (Bell, 1976; Buss, 1987; Goode, 1996; Hill et al., 1987; Nevid, 1984; Townsend & Levy, 1990a, 1990b).

Nevid (1984) asked participants to rate personal qualities (e.g., appearance, career, etc.) in terms of their degree of importance in determining their choice of a romantic partner. No visual stimuli were used when the participant determined the order of importance of qualities. Results indicated that women rated SES higher (i.e., as more important) than men in their ranking of important qualities. Townsend and Levy (1990a, 1990b) asked men and women how willing they were to enter into relationships after presenting them with a picture and description of a person. They found that SES was a better predictor for women than men when deciding whether or not to enter a serious relationship.

The previously mentioned studies have evaluated the importance of SES in combination with other attributes. Moreover, SES typically has been studied as a global construct; it has never been broken down into its counterparts (i.e., career, salary, attitudes, and behaviors) for evaluation. What are the effects of salary alone on mate selection? How important is salary alone in the overall effect of SES? The present study examined the significance of salary on willingness to date. In order to eliminate the influence of physical attractiveness on ratings, the pictures used in the present study were considered low in physical attractiveness. The independent variable was the salary associated with the photo (three levels: $20,000, $60,000, and $100,000). The dependent variable was the participant’s willingness to date a person. The primary hypothesis was that the participant’s willingness to date a person would increase as the target’s salary increases. Based on previous research, we hypothesized that this relation would be stronger for women.

**Methods**

**Participants**

The participants in this study consisted of 150 college students (75 men, 75 women) attending a large midwestern university. The average age of participants was 21 years. The ethnic backgrounds of participants varied, with 71% of the sampling being Caucasian, 14% Asian American, 8% African American, and 7% Native American. Researchers accessed participants from the college library, dormitories, the student union, and laundry facilities. In these facilities, researchers accessed 55 participants at student organizational meetings, 75 participants at the university library, and the remaining 20 participants in the mezzanines of the dormitories. Only three participants approached refused to participate. Participants were assigned to conditions (n = 50 each condition) based on the order in which they were approached by the experimenters.

**Materials**

The materials for the present study consisted of two pictures (one man, one woman) with a short description posted below each picture, and a questionnaire packet (i.e., informed consent sheet, short description of study, and questionnaire). A pretesting group of 20 students selected the pictures used in this experiment. The pretest group selected the most unattractive male and female picture out of 30 different photographs. The male and female pictures the pretest group selected most often as unattractive were used in this study to control for attractiveness. The pictures focused on the faces and upper torso of a Caucasian man and a Caucasian woman separately, both dressed in casual clothes. Included in the short description paired with the picture was the person’s age (i.e., 24), occupation (i.e., business field), pets (i.e., none), and marital status (i.e., single), with the only manipulated variable being salary. The salary values were $20,000, $60,000, and $100,000. The short descriptions were the same for both the female and male conditions.
The seven questions in the survey measured the participant’s perception of the target’s attractiveness and popularity and the participant’s willingness to date the target individual. These questions were based on a 7-point Likert scale with the anchors being 1 (not willing) and 7 (extremely willing). The focus question in this study was “How willing would you be to go on a date with this person?” The other questions were fillers to distract the participant from determining the true purpose of the research.

**Procedure**

The three salary levels defined the three conditions for both the male and female groups. Each participant experienced only one of the three conditions, receiving a picture of the opposite sex. Each condition utilized the same female and male picture.

One researcher was present for each individual participation. The two researchers were 20-year-old Caucasian women of the same height, stature, eye color, and hair color. Each researcher individually tested 75 participants. The researchers told the participants that the purpose of the study was to assess individuals’ perceptions. Once the participant finished reading the brief description of the study and signed the informed consent, the experimenter presented the participant with a picture that included one of the short descriptions below it. Participants were allotted 1 min to look at the picture, but they generally looked at it for 30 s or less. After reading the description of the person and observing the picture, the participant responded to the questionnaire. Once completed, the questionnaire and picture were gathered, and the participant was debriefed.

**Results**

The scores of the focus question (willingness to date), in each condition, were analyzed to determine any significant differences that might exist between conditions and sex. There was a significant increase in willingness to date across salary levels for both men and women (see Figure 1). Effects of sex and salary level were analyzed using a two-way analysis of variance (ANOVA). A main effect for sex was found to be significant, $F(1, 150) = 4.58, p < .05$, with women ($M = 3.27, SD = 2.07$) receiving higher ratings than men ($M = 2.97, SD = 1.68$). A main effect for salary level was significant, $F(1, 150) = 294.96, p < .01$, with scores increasing as salary increased. An interaction between sex and condition was also significant, $F(2, 150) = 5.40, p < .01$. Subsequent analyses, indicated that men and women did not differ at the two lower
salary levels; however, the willingness scores of the women were significantly higher than those of the men for the highest ($100,000) salary level $t(48) = 3.213, p < .05$.

**Discussion**

The purpose of this study was to examine the significance of salary on date selection preferences, while holding status and attractiveness constant. The first hypothesis was that participants’ willingness to date a person would increase as the target’s salary increased. We also hypothesized that this relationship would be stronger for women. The data supported both hypotheses. Participants’ willingness-to-date ratings increased as salary increased, and women were more willing than men to engage in a dating relationship, at least at the highest salary level.

Although evolutionary principles were not tested in this experiment, the results do overlap with findings based on these principles. Evolutionists have found that in terms of mate selection, women hold SES as a more important element than men. Thus, a woman may seek out a mate that has high SES in order to ensure support for her family (Townsend & Levy, 1990b). These results support these evolutionary principles in that women’s willingness-to-date ratings did increase significantly more than men’s ratings as salary increased. One contradictory result of the present study to these principles is that men’s ratings also increased as salary increased, although not as much as women’s. A possible explanation may be that this finding is an environmental influence playing a part in these results because in today’s society SES is an important attribute to both men and women (Bell, 1976; Goode, 1996; Hill et al., 1987; Townsend & Levy, 1990b). Thus evolutionary principles may explain the significant difference in men and women’s willingness ratings, whereas environmental influences might account for the significant importance overall of SES to both men and women.

The findings presented in this study were not consistent with social psychology theories of mate selection. A common view is that mate selection is a social exchange between the man and the woman (i.e., man’s security in exchange for an attractive woman; Rusbult, 1980). If this social exchange theory played a significant part in mate selection, men’s ratings of the women would have been consistent across conditions because there was no change in attractiveness.

Although past studies (Goode, 1996; Hill et al., 1987; Joshi & Rai, 1989; Sprecher, 1989; Townsend & Levy, 1990b) have tested the role of physical attractiveness and other attributes combined, this study isolated the influence of salary. SES was found to be a significant factor in these past studies when combined with other attributes. After isolating salary as a single variable to be tested in date selection, the present findings were similar to past studies that combined salary with other attributes (Goode, 1996; Hill et al., 1987; Joshi & Rai, 1989; Sprecher, 1989; Townsend & Levy, 1990b).

This study was a partial replication of Townsend and Levy’s study (1990b). The present study used the same format of questions (i.e., willingness to engage in specific relationships based on a Likert scale response), similar stimuli (i.e., pictures), and also similar methods of analysis. Their results indicated that SES in combination with other attributes (e.g., appearance, personality characteristics, etc.) was an important predictor of date selection in both men and women, but more so for women. This study supported past evidence when identifying the differences between men and women in the role of salary in date selection (Bell, 1976; Buss, 1987; Goode, 1996; Hill et al., 1987; Nevid, 1984; Townsend & Levy, 1990a).

Although the present findings support past research, the design involved a sample of college students whose responses were to hypothetical relationships with hypothetical partners, in only one region of the United States. A replication of this study with a sample encompassing a larger region or multiple regions would help to further support this hypothesis for the purpose of generalization to a more diverse population. Also, personal SES factors of the participants might influence ratings of the target. Controlling for this variable in future studies would broaden the knowledge of this attribute in date selection.

Other methods need to be developed to continue to test the role of SES in date selection. Showing a video of a person or having a person-to-person interaction are suggestions for future stimuli to further test this hypothesis. Future studies could also evaluate the impact of the participants’ personal SES in their selections of romantic partners. If a participant has a high income, how important is that attribute to that person when selecting a date? Another future study might also investigate the importance of salary among lesbian and gay male relationships.

**References**


WILLINGNESS TO DATE □ Driggers and Helms

London: John Murray.


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!

—EDITOR

Scott A. Bailey, *Texas Lutheran University*

Carl Bartling, *McNeese State University*

Deborah Briihl, *Valdosta State University*

Susan R. Burns, *Kansas State University*

Andrew Christopher, *Anderson College*

George Demakis, *Elmhurst College*

Jane Halonen, *James Madison University*

John Juve, *University of Missouri–Columbus*

Allen Keniston, *University of Wisconsin–Eau Claire*

Kirsten Rewey, *St. Mary’s University of Minnesota*

Brian Schrader, *Emporia State University*

Stephanie Weyers, *Emporia State University*

Elizabeth Yost Hammer, *Loyola University New Orleans*
Psichi Research Awards and Grants

Psichi annually sponsors national undergraduate and graduate research award competitions, as well as research awards for members submitting the best research for the regional and national paper/poster sessions. Members are encouraged to begin research papers early to submit for presentation at local, state, regional, or national conventions. Chapters are encouraged to provide an opportunity for members to rehearse their papers before an audience prior to presenting them at a convention.

In addition, Psichi 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 Psichi's national website (www.psichi.org) or from the Psichi National Office, 825 Vine Street, P.O. Box 709, Chattanooga, TN 37401-0709; telephone: (423) 756-2044; e-mail: psichi@psichi.org.

Guilford Awards

All Psichi undergraduate members are eligible to submit their research for the Psichi/J. P. Guilford Undergraduate Research Awards. Cash awards are $1,000 for first place, $650 for second place, and $350 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 Psichi. The deadline for this award is May 1 (postmark).

Allyn & Bacon Awards

The Psichi/Allyn & Bacon Psychology Awards, sponsored by Allyn & Bacon Publishers, are open to all undergraduate Psichi 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 Psichi. The deadline for this award is April 1 (postmark).

Erlbaum Awards

The new Psichi/Erlbaum Awards in Cognitive Science, sponsored by publisher Lawrence Erlbaum Associates, Inc., are open to all Psichi undergraduate and graduate Psichi 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 photo-
graphs 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 $300 each are presented to students submitting the best research papers to Psi Chi sessions at regional conventions. The number of awards in each region vary with the size of the regions; 78 awards of $300 each are available for the 2000–2001 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) 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 $300 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). 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 $3,000 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 $1,500 for each project. Total grant money available for the 2000–2001 year is $45,000. 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). Two grants will be awarded annually within each of Psi Chi’s six regions. The maximum amount of each grant will be $2,000. The deadline for this grant program is June 1 (postmark).
Subscriptions Are Available for the

Psi Chi Journal of Undergraduate Research

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.

**Journal Subscription Order Form**

Please begin my subscription to the *Psi Chi Journal of Undergraduate Research*.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount Enclosed</th>
</tr>
</thead>
<tbody>
<tr>
<td>@ $20 (individual)</td>
<td>$20</td>
</tr>
<tr>
<td>@ $40 (institution)</td>
<td>$40</td>
</tr>
<tr>
<td>@ $6 (single issue(s))</td>
<td>$6</td>
</tr>
</tbody>
</table>

Canadian order (add $10 annual, $2.50 single) = __________

International (see right) = __________

Total Amount Enclosed $ __________

Subscription orders must be prepaid and are based on the calendar year. Make checks payable to *Psi Chi*.

**Subscription Rates**

<table>
<thead>
<tr>
<th>Category</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>$20/year (4 issues)</td>
</tr>
<tr>
<td>Institutions</td>
<td>$40/year (4 issues)</td>
</tr>
<tr>
<td>Single issues</td>
<td>$6 per copy</td>
</tr>
</tbody>
</table>

**Classroom use**: Faculty members may contact the Psi Chi National Office for availability and rates.

**Canada**: Add $10 for annual subscriptions; add $2.50 for single issues.

**International**: Contact Psi Chi National Office for rates.

*Shipping Address (please type or print):*

Name ____________________________________________

Address _________________________________________

_________________________________________________

City/State/Zip+4________________________

*Mail this form to: Psi Chi National Office (Subscriptions), P.O. Box 709, Chattanooga, TN 37401-0709*
Other Journals of Student Research in Psychology

Journal of Psychological Inquiry
• Founded 1996 by the Great Plains Behavioral Research Association
• Authors must be undergraduate students.
• Publishes empirical studies, literature reviews, and historical articles concerning any topical area in the psychological sciences.
• Submissions must (a) come from students at institutions that sponsor the Great Plains Students’ Psychology Convention and the Journal of Psychological Inquiry or (b) have been accepted for or presented at the meeting of the Great Plains Students’ Psychology Convention, the Association for Psychological and Educational Research in Kansas, the Nebraska Psychological Society, or the Arkansas Symposium.
• Contact: Mark E. Ware, Managing Editor
  Department of Psychology
  Creighton University
  2500 California Plaza
  Omaha, NE 68178-0001
  Telephone: (402) 280-3193
  E-mail: meware@creighton.edu
  Web URL: http://puffin.creighton.edu/psy/journal/JPIhome.html

Modern Psychological Studies
• Founded 1992
• Two issues per year: September and March
• Primary author must be an undergraduate student.
• Preferred submission deadlines: April and October
• Publishes experimental research, but will also consider theoretical papers, literature reviews, and book reviews.
• Contact: Editor, MPS
  Department of Psychology
  University of Tennessee at Chattanooga
  615 McCallie Avenue
  Chattanooga, TN 37403-2598
  Telephone: (423) 785-238, 755-4262
  E-mail: mpssub@utc.edu

Journal of Psychology and the Behavioral Sciences
• Founded 1966
• One issue per year
• Authors may be undergraduate or graduate students with faculty mentor.
• Contact: Dr. Daniel J. Calcagnotti
  Faculty Editor
  Department of Psychology
  Fairleigh Dickinson University
  285 Madison Avenue
  Madison, NJ 07940-1099
  Telephone: (973) 443-8974
  E-mail: robinc@enter.net
  Web URL: http://alpha.fdu.edu/psychweb

Journal for Undergraduate Research in Psychology
• Founded 1997
• Published quarterly (March, June, September, December)
• Online journal dedicated to undergraduate research presented at local, regional, or national conferences.
• Abstracts accepted from any conference.
• Award winners may have full text of paper published online.
• Contact: Dr. Chris Koch
  Director of Undergraduate Studies in Psychology
  Department of Psychology
  George Fox University
  Newberg, OR 97132
  Web URL: http://www.georgefox.edu/jurp/

The journals listed above all solicit and publish research in psychology conducted and written by students. Journals published internally (i.e., which only accept submissions from students within one institution or department) are not listed. If you know of other journals that meet these criteria, please inform the Psi Chi National Office, P.O. Box 709, Chattanooga, TN 37401-0709; Telephone: (423) 756-2044; Fax (toll-free): 1-877-265-1529; E-mail: journal@psichi.org.